

Unit 1: Production Technology

Garment Production/Garment Assembly

Garments assembly is a basic requirement of clothing and fashion design which involves a conversion of raw materials into a stitched and wearable piece of clothing. To make a complete garment assembling is required for different parts of a garment. The front and the back body, yoke, sleeve, collar, cuff, placket, and pocket need to be assembled together in order to make a basic shirt.

Garments Production System

Production systems are needed to enable companies to produce the largest number of products effectively and efficiently for the lowest cost but at the required quality. Garments production system is an integration of materials handling, production processes, personnel, and equipment's that direct workflow and generate finished products. Simply, it is a way how the two-dimensional fabric is being converted into a three-dimensional garment in a manufacturing system. Garments can be made by applying different types of system. The garment production system used by an individual or in small tailor shops is different from the systems used in the factories. Two systems are described bellows-

1) Individual System

It is the traditional method of production in which one operator or small team is made one complete garment at the time by carrying out all the sewing processes necessary to assemble a garment. The operator can also make a pattern and cut the fabric according to his or her own method of work. After completion of assembling one single garment, the operator will start assembling the next one and so on. This type of garment assembly system is effective when varieties of garments are required to be produced in very small quantities. The individual system of assembling garment is more common with homemakers, local tailors, boutiques, etc.



2) Factory Production System

When products are made in a factory, there will be a system to ensure everything runs smoothly. These are generally referred to as production systems. Several different production systems are used in the apparel industry for assembling a garment. The choice of best production system depends on the type of product, number of product to be made, when the products are needed,

the size of the factory, the skills of the employees. The most commonly used types of production systems in the garment industry are:

- i) Progressive Bundle System (PBS)
- ii) Unit Production System (UPS)
- iii) Modular Production System (MPS)

i) Progressive Bundle System (PBS)

The progressive bundle system is a traditional production system that has been widely used in the apparel industries for many decades and still is today. In this system bundles of garments parts are moved in sequence from one sewing machine operator to the next. Each worker receives a bundle of unfinished garments and performs a single operation on each garment in the bundle. After finished of his/her work on a bundle, they are re-tied the bundle and passed on to the next operator. Each PBS task is given a target time or “SAM” (Standard Allowed Minutes). The success of PBS depends on how the production system is set up and used in a plant.



ii) Unit Production System (UPS)

The unit production system (UPS) for apparel industries is a flexible material handling system that requires a computerized overhead transportation system to move the garment components automatically from one workstation to the next according to a pre-determined sequence. It replaces the traditional garment production system of handing, bundling, tying and untying, and manually moving garment parts. It provides uninterrupted workflow to the workers and helps to improve work efficiency and product quality. In the fast-moving fashion and apparel industry this is highly essential.

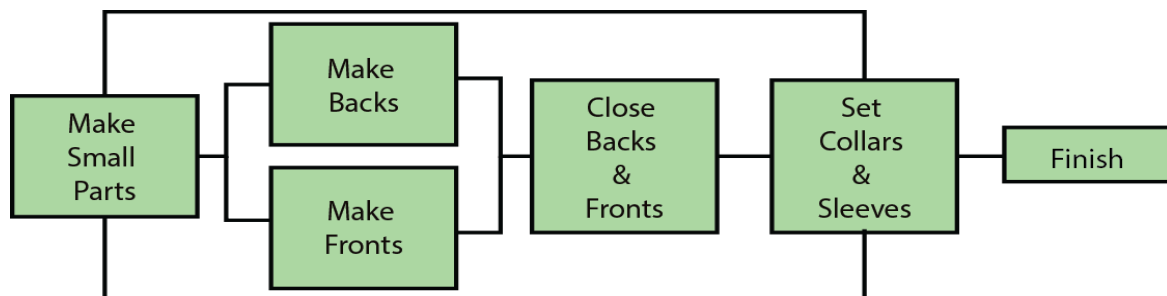


ii) **Modular Production System**

Modular production system involves a group of 4-17 people who set their own standards and work together to produce a finished garment. They work as a team or module and each team member works on more than one operation. In this system, operators help each other to finish the garment quickly and the team is fully responsible for the production and quality. The number of teams in a plant varies with the need of the industry, size of the industry and product line in garments. This system MPS is the perfect solution for the apparel manufacturer where quick response is needed. This system is also popular as a Cellular Garment Manufacturing, flexible work groups or Toyota Sewing System (TSS).



1. Garment production systems



Advantages of Unit Production System of garments production:

Benefits of a unit garments production system depend on how a production system is used and the effectiveness of management. Throughput time in the sewing room can be drastically reduced when compared to the progressive bundle system of garments production because works in process levels are reduced. Garments operator productivity increases. Direct labor costs are reduced because of prepositioned parts in the carriers and elimination of bundle processing. Indirect labor costs may be reduced by elimination of bundle handling and requiring fewer supervisors. Quality is improved because of accountability of all garments operators and immediate visibility of problems that are no longer concealed in bundles for extended periods of time. The central control system in garments production makes it possible to immediately track a quality problem to the operator that completed the operation. Other

benefits that are realized are improved attendance and employee turnover and reduced space utilization.

Disadvantages Unit Production System of garments production:

Considerations for installing a UPS include costs of buying equipment, cost of installing, specialized training for the production system, and prevention of downtime. Down time is a potential problem with any of the garments production systems, but the low work in process that is maintained makes UPS especially vulnerable.

Production Process

Listed SOP hyperlinked with needed SOP, you can read by following the topic.

1. Fabrics inspection SOP
2. Shade band procedure
3. Fabrics process before cutting
4. Trim and accessories inspection SOP
5. Garments pattern making SOP
6. Fabrics relaxation, spreading and cutting procedure SOP
7. Sewing quality procedure
8. Garments measurement Control SOP
9. Needle controlling SOP
10. Sharp edge controlling SOP
11. Button pull test SOP
12. Button pinch setting SOP
13. Metal detection SOP
14. Mold prevention SOP
15. Finishing SOP
16. Quality control manual or SOP
17. CAD Room SOP in Garments Industry
18. Embroidery process SOP in Garments Manufacturing
19. Finished Garments Warehouse procedure

Sampling

Sampling is a process where factory develop garment samples according to buyer's specified design. This is also known as product development stage. Samples are required at various stages to get approval from buyer on a particular design. As per the development stages samples are named as Proto sample, Fit sample, Size set sample, Sales man sample, production sample, Top of production (TOP) sample and shipment sample.

Costing

A business is all about making profit. So correct costing of a product before order finalization is very important. Costing of garment is the cumulative cost of raw materials, direct labors and direct and indirect overheads. After developing sample or directly receiving buyer's sample factory needs to send FOB (freight on board) price of the garment. To decide FOB of

a garment factory makes cost sheet including raw material cost, total of direct labour costs of each processes, factory overhead. An FOB is the sum of garment cost, factory margin and taxes.

Production Planning

After receiving the order factory plans for raw material requirement for the order. Raw materials like fabrics, sewing threads, packing materials, hang tags and other accessories. Factory plans timelines like when to start cutting, when to submit pre-production sample, when to finish sewing and finishing, final inspection date and shipment date. In production planning stage job responsibility for different processes is defined.

Cutting

In this stage fabrics are layered on a table layer by layer up to a certain height. Then by means of a cutting machine fabric are cut into garment shapes or pattern and separated from the layer. Fabric layering is possible both manual spreading and automated spreading. Cut parts are then numbered and bundled and send to sewing room. For details about cutting process see cutting room overview. The quality of end product (garment) is very much depends on the good cutting quality. Secondly, fabric the main raw material of the garment represents about 70% of total garment cost. That is why cutting is an important process like others where control the fabric saving and garment quality.

Sewing or Stitching

Garment panels are stitched together in sewing room by means of sewing machines. In sewing 2D fabric patterns are converted in 3D forms. An operator run the machine and using sewing threads garment parts are joined together. Various types of sewing machine are available for sewing. Machines are selected according to the seam and stitch requirement. In industry traditionally sewing machines are laid in a row. Cut parts are feed at the start of the line, passed through the line and at the end of the line a complete garment come out. Each machine is run by individual operators and an operator sews only one or two operations of the garment. A line consists of sewing operators, helper to feed them with cut parts, thread and other trims, quality checker and one fully or partially devoted supervisor.

Threadtrimming

After stitching, all hanging thread are cut by means of hand trimmer. Auto thread trimming machines are also available to perform this task. All loose threads inside a garment are removed as well. Garments without any loose thread and long tail are basic quality requirement.

Washing

This process is performed when buyer want washing or special finishes to the garments. For light colour garment washing is carried out to remove dirt.

Finishing

This process includes checking of garment, measurement checking, ironing, and spotting. After sewing of the garments, all pieces are checked by quality checker to ensure that garments are being made as per buyer quality standard. Checking normally is done for visuals appearance and measurements. Spotting is required to remove stain in the pieces. Various chemicals (solvents) are used to remove various kinds of oil stain, marks and hard stain. Each garment then ironed to remove creases by means of press.

Packing and folding

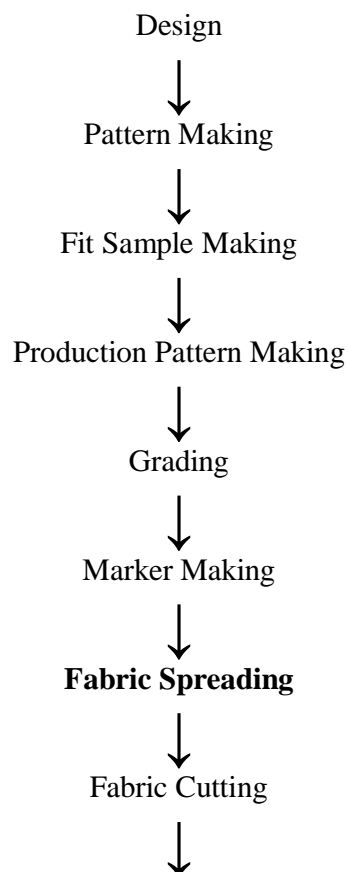
Each pressed garment is then folded with tissue or card board. Folding varies product to product and also buyer to buyer. Hang tags, special tag and prices stickers are attached with plastic Kimble or threads. Folded and tagged garment are then packed into poly bag. During packing garments are randomly checked by internal quality controllers to ensure that only quality goods are being packed.

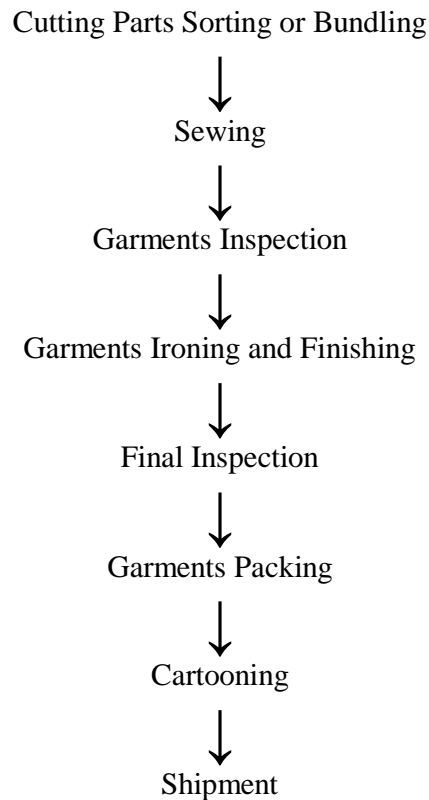
Other Processes

In current fashion trend very few garments are made without value added processes, like printing, garment dyeing, special washing, embroidery, adda work (hand embroidery with lot of bead work)

Flow Chart of Garments Manufacturing Process / Technology:

A basic garment manufacturing flow chart is presented below:





Each process of garments manufacturing flow chart is discussed in the below with the details:

1. Design:

Design is provided by the buyer. After placing an order buyer send the technical sheet and art-work of an order to the merchandiser. This process is done both manually and by using the computer.

2. Pattern Making:

By following the technical sheet and art-work, the pattern of each garment style should be made. It's done both manually and by using a computerized method.

3. FitSample Making:

The main target of making a fit sample is to follow the detailed instruction about the style of that garment. After making it's sent to the buyer to rectify. It's done manually.

4. Production Pattern Making:

For bulk production, allowance is added here with net dimension. Production Pattern Making is done both manually and by using the computer.

5. Grading:

During an order confirmation, the buyer suggests the size ratio of that order. So that order should be graded according to the buyer's instruction. Grading is done manually or by using the computer.

6. Marker Making:

Marker is a very thin paper that contains all the parts of a particular garment. To make the cutting process easy, it's must be needed. Marker making process can be done both manually and by using the computer.

7. Fabric Spreading:

To cut the fabric properly fabric is spread inlay form. Fabric Spreading is done manually or by using a computerized method.

8. Fabric Cutting:

Fabrics have to cut here according to the marker of garments. The fabric **Cutting** process is done by using a manual method or computerized method.

9. Cutting Parts Sorting or Bundling:

Here, cutting parts have to sort out or make bundling to send these easily into the next process. This process is done manually.

10. Sewing:

All the parts of a garment are joined here to make a complete garment. The sewing process is done manually.

11. Garments Inspection:

After completing sewing, inspection should be done here to make fault free garments. Garments Inspection is done by using the manual method.

12. Garments Ironing and Finishing:

Here garments are treated by steam; also required finishing should be completed here. This process is done by using the manual method.

13. Final Inspection:

Finally, the complete garments are inspected here according to the buyer's specification. Final Inspection is done by manual method.

14. Garments Packing:

Complete garments are packed here by using the buyer's instructed poly bag. Garments packing are done by using the manual method.

15. Cartooning:

To minimize the damages of garments, all the garments have to cartooned by maintaining buyers' instruction. This process is done manually.

16. Shipment

After completing all the required processes it's finally sent to the buyer.





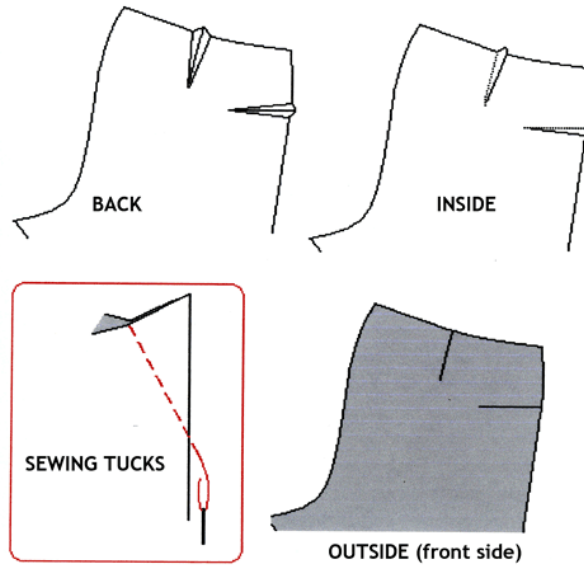
Sewing pants with simple -

NOTE that the outside of the pants is marked as grey and the inside of the pants as white on

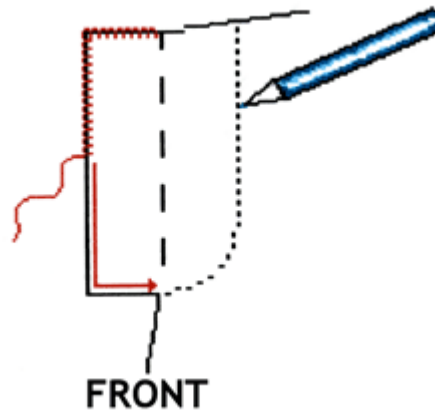
INSIDE **OUTSIDE**

the explanatory pictures.

FRONT AND BACK PIECES Sew the tucks in the back piece.



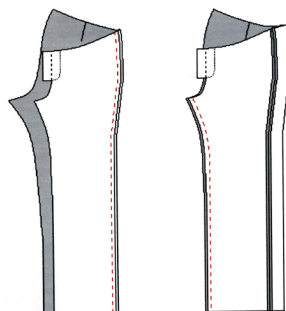
On the front piece sew zigzag stitch over the edges of both flaps (separately, not together) and using a removable pencil or dress makers chalk, mark the curve on the front of the left



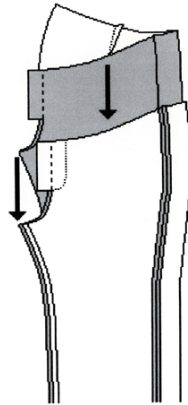
hand side.

SEW LEGS

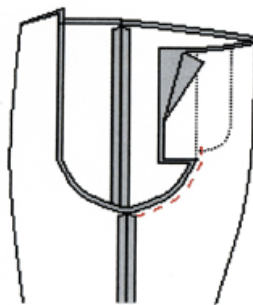
Line up the sides of front and back pieces, right sides facing in, and sew side leg seam. Do this for both legs. Line up the inside leg sides and sew together. Press seam open. Do this for both legs.



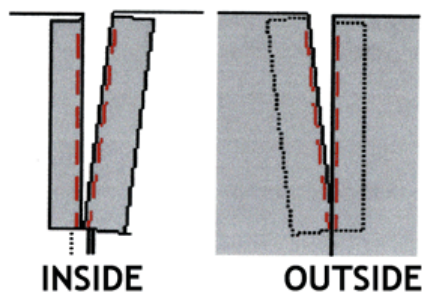
Leave one leg with wrong sides facing out, and turn the other leg so that the right sides are facing out. Put the right side out leg into the other leg, lining up the crotch seam.



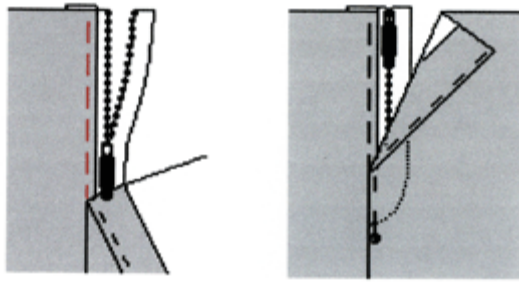
SEW FLY With legs lined up inside each other, sew the front crotch.



Then by pressing the seam, and following the line, press and **HAND** stitch the flaps so that the left side overlaps the right side.



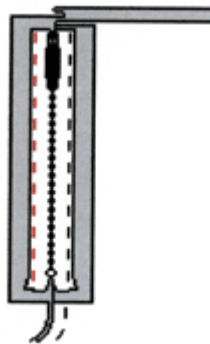
Turn the pants to the outside and attach the zip on the right side.



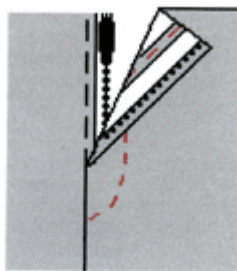
Then, close the overlapping flaps and pin together.

Turn the pants to the inside and carefully open the flaps (you should have the remaining 'unattached' flap to the left side with zip pinned to its top). Make sure you do not dislodge the pins on the outside.

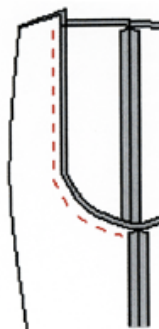
Attach the zip to the SINGLE layer of the left flap. The zip is now attached to the right side of the front piece (including right flap) and the left flap of the fly.



Turn pants to the outside again and overstretch the curved line to join the flaps and give the fly its style.

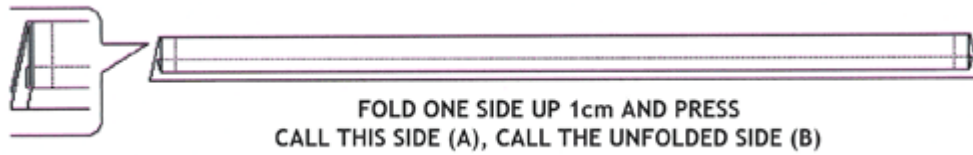


Finally, finish sewing the back seam of the crotch.

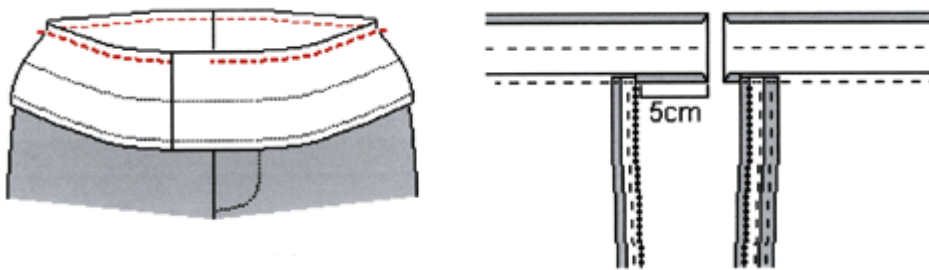


WAISTBAND

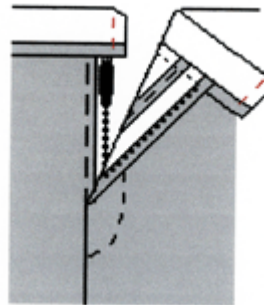
Fold and press as shown



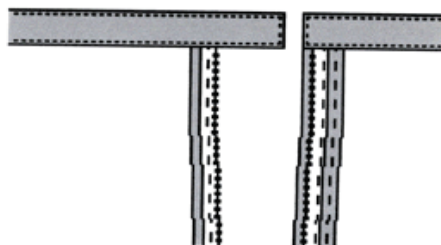
Attach the unfolded side (B) edge to the top of the pants, right sides of the fabric facing each other. Make sure that the 5 cm overlap is on the left side. Stitch on. Fold up the waistband and press seams up towards the waistband.



Fold waistband right sides together and sew edges.

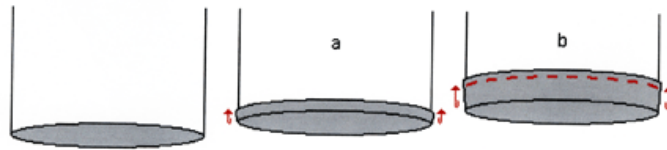


Then turn right side out and press well, being sure to pull out the corners.




NOTE! Corners are shown cut in the picture but you should cut the corners AFTER you have sewn the edge. Top stitch over waistband, joining it totally to the pants.

CUFFS



- a) Fold up a small edge of around 1 cm and press.
- b) Fold up a larger edge, of around 1,5-2 cm, press and sew.

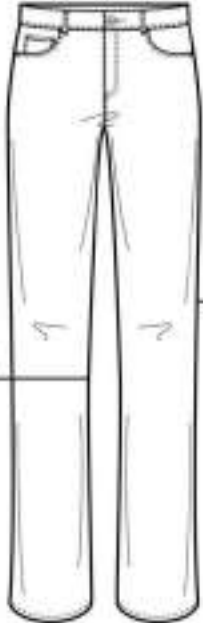
8 Responses to Sewing men's pants with simple fly



CONSTRUCTION PAGE

STYLE # AU12_MW_007
 SEASON: AUTUMN
 NAME: MEN'S FLANNEL
 FIT TYPE: SLIM FIT
 BRAND: THEWCO
 STATUS: SAMPLE - 1

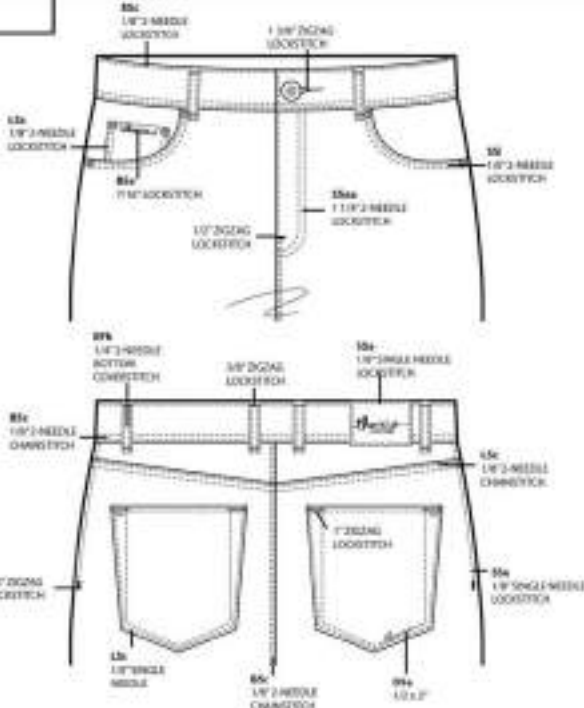
SIZE RANGE: 26-38
 SAMPLE SIZE: 32
 DESIGNER: AARON THEW
 DATE FIRST SENT: 9/15/2011
 DATE REVISED:
 FABRIC: 98% COTTON
 2% SPANDEX



15c 1/2" HEAD OVEREDGE, JOINED WITH 1/4" NEEDLE CHAINSTITCH

87a 1/2" SINGLE NEEDLE CHAINSTITCH

87b 1/2" SINGLE NEEDLE LOCKSTITCH



85a 1/4" NEEDLE LOCKSTITCH

1 3/8" ZIGZAG LOCKSTITCH

15a 1/2" NEEDLE LOCKSTITCH

85b 1/2" NEEDLE LOCKSTITCH

85c 1/2" NEEDLE LOCKSTITCH

1 1/2" ZIGZAG LOCKSTITCH

13aa 1 1/2" NEEDLE LOCKSTITCH

87a 1/2" SINGLE NEEDLE CHAINSTITCH

87b ZIGZAG

10a 1/4" SINGLE NEEDLE LOCKSTITCH

85a 1/2" NEEDLE CHAINSTITCH

15c 1/2" NEEDLE CHAINSTITCH

87b ZIGZAG

15a 1/2" SINGLE NEEDLE LOCKSTITCH

15b 1/2" SINGLE NEEDLE

85a 1/2" NEEDLE CHAINSTITCH

10 1/2"

Types of threads-

When it comes to hose and tube fittings, there are a number of different types of threads available. The number of fitting end options can make selecting the most appropriate fitting thread type a daunting task. The reliability of the fitting connection depends on selecting what's optimal for the application. First, we will educate you about six types of common thread types. Second, we will guide you through the thread identification process.

Six Most Common Types of Threads

When it comes to different thread types, most people who work in the fluid-power industry will recognize **American pipe threads (NPT/NPTF)** as well as **SAE or Unified threads (UN/UNF)**. However, threads and connections are divided into six main types:

1. UN/UNF
2. NPT/NPTF
3. BSPP (BSP, parallel)
4. BSPT (BSP, tapered)
5. metric parallel
6. metric tapered

Let's learn the difference between each one of them.

How to identify different types of threads in four easy steps

Before you start, make sure you have two thread identifying tools on hand:

- **Pitch Gauge**

A pitch gauge is a tool used to measure the distance between the crests of threads. For NPT, UN/UNF, BSPP, and BSPT we measure the number of threads per inch. If you have the metric threads, the pitch gauge identifies the distance between each individual crest in millimeters.

- **Caliper**

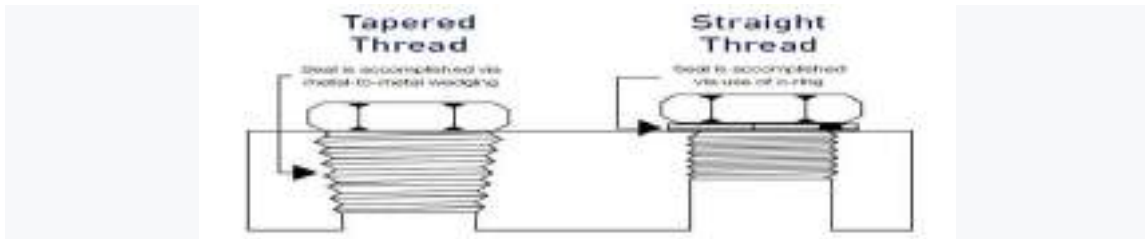
A caliper is used to measure the diameter of a thread. For male threads, it measures the outside diameter, for a female thread – inside diameter, respectively. For advanced users, a digital caliper is available from multiple retailers. It saves your time and simplifies the process.



STEP 1. Parallel thread vs. tapered thread. Let's learn the difference.

Parallel threads include:

- UN/UNF
- BSPP
- metric parallel



Tapered threads include:

- NPT/NPTF
- BSPT
- metric tapered

To identify whether the thread is tapered or parallel, look at the diameter of your thread. If the thread diameter gets thinner towards the end, you are looking at a tapered thread. On the contrary, if the thread diameter is the same at the top and the bottom of the thread, you have the parallel thread. See the graphics below to learn the visual difference between tapered and parallel threads. Using a known parallel, like a pair of calipers can help to show if a fitting is tapered. If the threads touch the entire length of the calipers, it is parallel but if it rocks you have tapered threads.

STEP 2. Determine the Pitch

Use a thread pitch gauge tool to determine the size of the thread. Thread pitch gauge helps you to accurately measure and calculate the number of threads within a given distance.





Try a number of gages from the pitch gauge tool against the white background before deciding which one fits your thread the best. Look at the common pitch sizes for each of the different thread types in the table below.

UN/UNF (SAE)	12, 14, 16, 18, 20, 24
NPT/NPTF (American Pipe)	11 ½, 14, 18, 27
BSPP (British Pipe)	11, 14, 19, 28
BSPT (British Pipe)	11, 14, 19, 28
Metric Parallel	1.0, 1.5, 2.0
Metric Tapered	1.0, 1.5, 2.0

STEP 3. Thread size matters

When it comes to determining the thread size, you have two approaches at your disposal. Before you start, determine if your thread is a pipe thread (NPT/NPTF, BSPT, BSPP) or not (UN/UNF, Metric Parallel, Metric Tapered). Remember that tapered thread can both be a pipe thread or not.

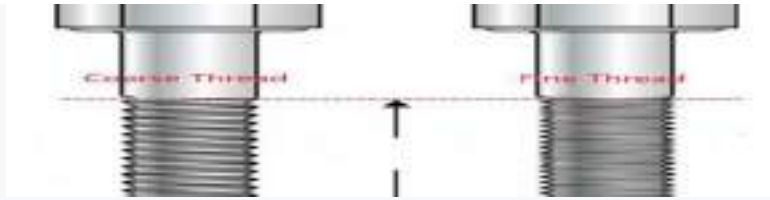


Figure 1. Pipe Thread ID Size Chart

If you have a pipe thread, compare the size of the thread with a nominal size profile, as shown in Figure 1. For non-pipe thread (UN/UNF, Metric Parallel, Metric Tapered), use the caliper tool to measure the outside diameter of the tread.

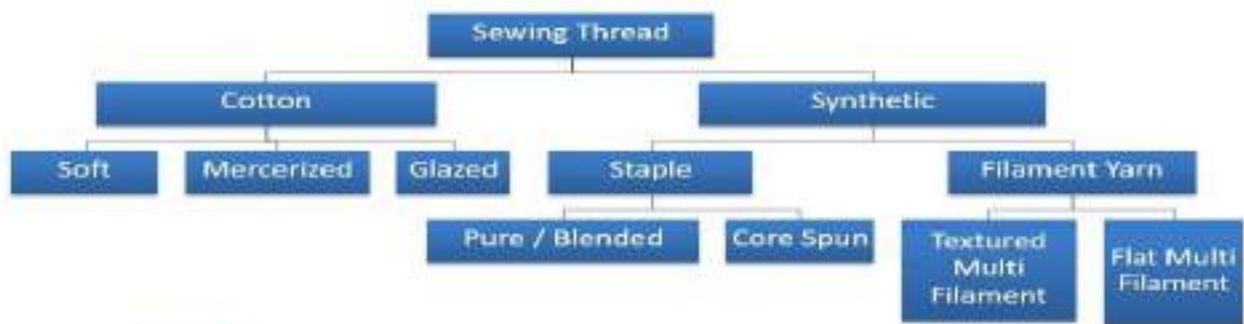
STEP 4. Designate the thread

This step involves designating the thread according to the industry standards for further use. Start with identifying the tread size (nominal or actual), then write down the type and the pitch (if applies). See the examples in the table below under STEP 4:

Summary

To sum up, the thread ID process consists of four simple steps. We have learned about different types of threads, including tapered and parallel, pitch sizes, thread sizes, and industry standards when it comes to identifying thread types. Remember that selecting the wrong part can result in physical or property damage if resulting in a leak, so always consult you, fluid connector specialist, if you have any questions to prevent your equipment from breaking or malfunctioning. Bottom of Form

B.Thread classification based on:

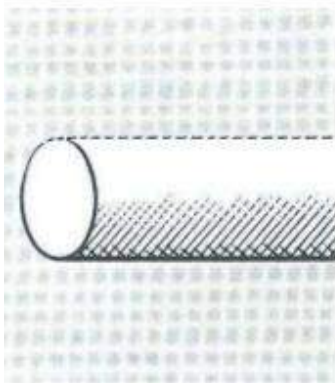


THREAD CLASSIFICATION

THREAD CLASSIFICATION BASED ON CONSTRUCTION

Filament threads are stronger than spun threads of the same fibre and size. Three types of filament threads are commonly used are;

1. **MONOFILAMENT THREAD**
2. **SMOOTH MULTIFILAMENT THREAD**
3. **TEXTURED FILAMENT THREAD**



MONOFILAMENT THREAD

is made from a single continuous fibre with a specified thickness. Though monofilament is strong, uniform and inexpensive to make, it lacks flexibility and is stiff and scratchy in feel. As a result, usage is normally restricted to hems, draperies, and upholstered furniture.

Sewing Thread:

External appearance and qualities of a seam are directly concerned with the sewing thread. Specially, the quality of a garment also depends on the selection that what sort of sewing thread will be used for the sewing of the garment. The construction of sewing thread, the fiber types in the thread and the finishing material in the thread etc influence on the external appearance of the seam and its qualities. There are various types and of various sizes of sewing threads but specific thread is to use for specific fabric and specific thread size should be used for specific **needle** size.



Types and Classification of Sewing Thread:

Threads may be of various types and they may be classified in various ways but internationally, sewing threads are classified in the following three ways, such as,

- A. Fiber types
- B. Thread construction
- C. Thread finishing

A. Fiber Types:

Depending on the classification of fibers in the thread, such as, natural fiber, synthetic fiber or their blends, the classification of sewing thread is determined.

The sewing thread produced from natural fibers:

The various types of sewing threads produced from the natural fibers are discussed below:

Linen: The linen thread is very ancient and once it was used for sewing of garments on a large scale. Linen thread is very strong and to some extent it is stiff, once used on a large scale for making comparatively stronger seems like tents, canvas, shoe making and button attaching but presently the use of linen thread is about an extinct because of synthetic thread.

Silk thread: Silk thread is made from both continuous filament and broken filament silk. The silk thread is comparatively stronger and stretchable. It is lustrous and of good quality. But its use is limited for making costly garments.

Cotton thread: Among the threads produced from natural fibers, cotton thread is produced and used most. Generally, cotton thread is produced from good cotton fiber. Sewing of fabrics with cotton thread is easier and suitable but its strength and abrasion resistance is comparatively lower than synthetic thread. During sewing temperature produced by needle, cotton thread is not damaged. Cotton thread is generally of three types, such as.

Soft cotton thread: Among these cotton thread, bleaching and dyeing is done and sometimes lubricants are used for becoming less friction. If this type of thread is wet in water, they shrink and due to this, there is a possibility of puckering of seams after washing of the fabric in water.

Mercerized cotton thread: These cotton threads are finished in caustic solution in full stretched condition. As a result the fibers in the thread become rounded, resulting in the increase of both strength and glaze of the thread.

Glazed cotton thread: Glazed cotton thread is made by applying the surface coating on the soft cotton thread. As a result, this type of thread becomes to some extent stiff and smooth and increases the abrasion resistance.

Viscose thread: It is made from continuous filament or staple fiber produced from re-generated cellulose. Both the strength and the durability of viscose thread are comparatively low, but they are highly lustrous. For these reasons, the demand for viscose thread is very low for sewing thread but it is being used on a large scale for embroidery purpose. The garments where the use of viscose thread is much, those garments should be less washed in water.

The sewing thread produced from synthetic fibers:

There are various types of synthetic fiber but polyester and nylon fibers are mostly used in making synthetic sewing threads. Without this, Aramid and PTFE fibers are also used in some small quantities for making of synthetic sewing threads. Continuous filament and staple fibers, this means from both of these fibers, sewing thread is made. Generally, the synthetic thread is not easily damaged by mildew or bacteria and it is not easily rotten. The strength and durability of these are very high. Specially, the abrasion resistance is four times higher than that of cotton thread. About the synthetic threads, which are used for sewing works, are discussed below:

Polyester thread: The sewing thread made from polyester fiber are strong enough, cheaper in price, good elasticity property and excellent colorfastness resulting in using on a large scale in garments sewing. Presently, the use of polyester thread is maximum among the use of synthetic sewing threads. If it is washed in water or boiled up to 150 degree centigrade temperature, it does not sh

Nylon thread: the use of nylon thread for sewing of garments is very much limited. But due to its high extensibility, nylon thread is used in sewing of swim wear and some knitted fabrics.

Aramid thread: The use of this type of thread is very much limited, because it is a very costly thread. The aramid thread such as Nomex is used as a sewing thread in those garments which are flam

B. Thread Construction:

Sewing thread is made both from staple fiber and continuous filament fiber. Initially, single thread is made from staple fiber with S twist and then a number of single threads together are given Z twist and the sewing thread is made. Z twist sewing thread is used mostly, but in some cases for example, in flatlock machines, S twist sewing thread is used. In case of filament, sewing thread is made by twisting one or more than one filament. Based on the construction of threads, the types of sewing threads are described below:

Monofilament: Generally, this type of sewing thread is made with a continuous filament and there is no twist in the thread. As a filament itself is used as sewing thread, so it becomes stiff and thick than the other filaments. Moreover, the cutting end of the thread prickles in the body. The gripping capacity of its seam is very low and the stitches in the seam open very easily. As the filament is transparent, no problem of shade matching arise in sewing with any color of fabrics. Generally, monofilament thread is used for sewing low priced garments, upholstery garments and in sewing of fabrics for household use.

Multi-filament:

This thread is made by twisting together a multiple continuous filaments and in the form of single, or plied or corded. In case of making of flexible threads, the thread made from filament is twisted, dyed and lubricated. Synthetic polymer is applied on plied thread for having the highest quality and abrasion resistant thread. As a result, polymer bond is created between each filament and thread. Such produced thread from polyester filament is very stronger and they are obtained comparatively in cheap price. The thread produced in this

system is comparatively fine, so thread of a longer length can be wound in a thread cone. The most abrasion resistant and strongest sewing thread is obtained from poly amide that means nylon filament in bonded process. This type of thread is being used on a large scale in leather or shoe making factories. If multifilament thread is used in sewing works, the stitches at the beginning of the sewing and at the ending of the sewing must be required to secure, otherwise sewing may start opening from an end.

Textured thread: Texturing means, modification of threads by applying crease in threads in various ways. Generally, this type of thread is made by texturing together a number of continuous filaments. Folds or crimps are created in filaments by texturing. This can be done in various ways, such as, false twisting, air jet, edge crimping etc. Based on the desired use, the amount of crimps are increased or decreased. This type of sewing thread is felt soft in touch for which they are used as under thread and edge finishing on a large scale.

Textured thread is made both from polyester or nylon filament, but the crimp rigidity is higher in nylon than polyester. The seam locking capacity of the textured thread is better than monofilament or multifilament. Generally, it is much used as looper thread.

Core spun thread: This type of sewing thread is made in combination of continuous filament and staple fiber. Continuous filament stays at the center of single thread and generally cotton fiber is wound around it during twisting. This way, by twisting two or three single threads together, the sewing thread is made. Generally, polyester filament is used as core and cotton fiber is used as staple. The most remarkable suitable property of this type of thread is that the strength equal to synthetic thread is obtained and the qualities of cotton fiber is obtained. In addition to that, it is suitable in stitch formation and if any lubricant is applied in thread, it remains easily preserved for a long time by cotton fiber. Without this, the shrinkage of this type of thread is low. During sewing in high speed, the needle is heated due to friction. There is no possibility of damage to this type of thread due to the high temperature created by the needle. But this type of thread is dyed in two times, so the dyeing cost is high.

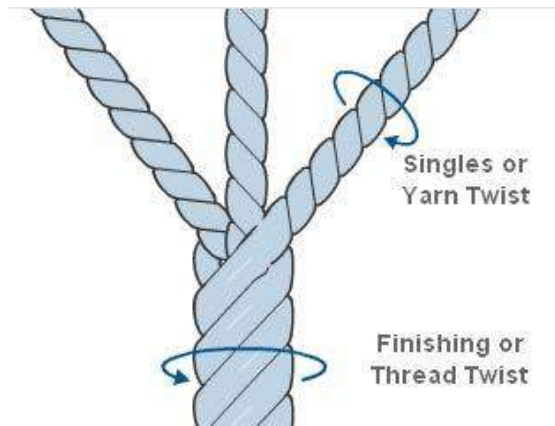
C. Thread Finish:

Various types of finishing material are used on threads for the interest of sewing easily and fairly. Specially, by applying finishing material on sewing threads, some special properties are inserted in them. Lubricant is one of the finishing materials that are used in threads.

Thread Manufacturing

Without the correct level of finishing twist, a conventional thread cannot be controlled during sewing. The individual plies would separate during their repeated passages through the needle and over the sewing machine control surfaces. Twist is therefore defined as the number of turns inserted per meter (or turns per inch) of the yarn or the thread produced.

If the twist is too low, then the yarns may untwist, fray and break, if it is too high then the resulting liveliness in the thread may cause snarling, looping, knots or spillage from the final package.



As you can see the term "S" or "Z" twist direction is derived from the diagonal of these letters following the direction of the twist. "S" twist is sometimes referred to as right twist and "Z" twist is sometimes referred to as left twist.

The continuous filament yarns shown at the beginning of this session can also be twisted to make continuous filament sewing threads. Continuous filament yarns can also be assembled in 2, 3, or 4 plies to create continuous filament polyester or nylon sewing threads. These include textured threads.

Thread Types

A whole range of sewing threads can be produced from the few raw materials we've discussed today.

Corespun is the best general-purpose apparel sewing thread available in the market today. Corespun combines the strength and elongation characteristics of the Continuous Filament Core with the sewing performance and surface characteristics of the spun fibre threads.



The filament component is merged with the staple fibres in the yarn spinning operation. The filament takes up its position in the centre of the yarn with a protective sheath of staple fibres wrapped around it. These composite yarns are then twisted to form a plied thread.

The two main Corespun constructions are Polyester Filament Yarns covered and protected by Polyester fibres or Polyester Filament yarns covered and protected by Cotton fibres.

Staple Spun Polyester threads are manufactured from high tenacity staple fibres. A typical high tenacity fibre used for sewing thread would be 1.2 denier, which is a measure of the linear density and 38mm long with a tenacity of at least 7.5 grams per decitex. Some thread producers use a fibre length of 45mm or even 55mm depending on the machinery they

have available. SSP threads are produced in a wide range of constructions and sizes, tex and ticket numbers, to accommodate most general sewing applications.



Staple Spun Cotton threads are generally from high-grade long staple fibres. These cotton threads are of three distinct types, Soft, Mercerised and Glace or Polished.

Soft threads receive no special treatment other than bleaching or dyeing and the application of a uniform, low friction lubricant.

Mercerized threads are treated under tension, in a solution of caustic soda which causes the fibres to swell and become rounder in the cross-section. This process enhances the lustre and increases the strength of the fibres. The dye affinity is also enhanced by this process.

Glace cotton threads are produced from soft cotton threads by giving them a polishing treatment. This process applies a coating of starch to the surface of the thread, brushes the fibre ends into the body of the thread and dries them to form a smooth surface on the thread. The polishing process increases the strength of the thread by about 10% but more importantly this process protects the thread from abrasion during heavy-duty sewing operations. Glace finishes are also applied to Polyester / Cotton core spun threads.

USE OF THREADS

Use of thread.

- IN APPAREL INDUSTRY.
- IN LEATHER INDUSTRY.
- IN TEA INDUSTRY.
- FOR FIREMAN
- DEFENSE AND POLICE
- HOT METAL INDUSTRY.
- IN HOSPITAL FOR SURGERY
- IN ARM FORCE
- RAINWEAR
- UPHOLSTERED FURNITURE



The preferred method of sizing sewing thread for Coats Global Offer Products is the Tex System. Tex is the weight in grams of 1,000 metres of thread or yarn. The higher the number the coarser the thread.

An alternative sizing unit in common use for synthetic and synthetic blended threads is Metric Ticket. The metric ticket number is derived from taking the number 1,000 divided by the tex number multiplied by 3. The higher the number the finer the thread.

100% cotton threads still utilise the Ne [number] English Sizing System known as Cotton Count and Cotton Ticket number.

Apparel Thread Conversion Table

Here is a useful apparel thread size conversion table. This includes the US ticketing system as well as Singer and Metric needle sizing.

Terminology related to sewing threads

All professions, crafts and industries have their own phrases and acronyms, and sewing is no exception. There are so many words, terms and sayings that might make you scratch your head in puzzlement; but we are here to break things down for you. To give you a comprehensive a-z guide to sewing terms, so that you can be ahead of the game, or at least a confident player. Our ultimate sewing dictionary is jam-packed but there might be some terms we don't mention. If there are any terms you think we should have included, let us know in the comments below. We will add them in, along with your name. However, these 85 words and phrases will give you a great head start.

What are sewing terms?

Sewing terms are exactly what it sounds like; words and phrases used within the sewing world. If you hear the word "*basting*," you might think we're talking about keeping a chicken or turkey moist while cooking. However, in sewing circles, this word also means long, loose stitches that hold fabric temporarily in place. Feeling more like a sewer yet?

Our a-z dictionary will give you the words, phrases and definitions of some of the most common sewing terms that you are most likely to come across and need. The more you sew,

the more you'll know! Oh, and if you are a true beginner, then make sure you check out our blog post on [how to avoid the top 13 sewing mistakes](#).



A-Z Sewing Terminology You Need To Know

1. Anchoring stitches

These are machine stitches that are sewn with zero stitch length, to keep from pulling out. This term can also be used to refer to when you stitch backwards for a couple of stitches, to anchor it.

2. Appliqué

This comes from the French word “appliquer,” which means to apply or put on. In sewing, applique is used to describe the process of applying one kind of fabric on top of another layer of fabric. This is fixed into place by sewing or by another fusing means.

3. Armscye

The opening in a bodice to which the sleeve is attached; also known as an armhole.

4. Ballpoint needles

A type of sewing machine needles that are specifically designed to be used when sewing knit fabrics. The rounded tip prevents piercing, that would damage the knit.

5. Baste

Temporary long running stitches, made by either hand or machine, that holds the fabric together before permanent stitches are applied.

6. Bias

A direction of a piece of woven fabric. Usually referred to as “the bias.” This is a 45 degree angle to the grain line, or diagonal direction of the fabric.

7. Binding

A narrow strip of material which is sewn around the edge of a garment, a bag or even a quilt.

8. Blanket stitch

A hand stitch used for finishing a fabric edge.

9. Bobbin

The thread that comes up from the bottom and meets the thread from the spool to form the stitch. Bobbins need to be wound up and inserted properly into a sewing machine.

10. Bumblebunching

That annoying tangled loop of stitching on the bobbin side of the fabric, that is a result of improper tension applied to the sewing machine.

11. Buttonhole

A small cut in the fabric that is bound with small stitching. The hole has to be just big enough to allow a button to pass through it and remain in place.

12. Casing

A folded over edge of a garment, which is usually at the waist. It is used to enclose a way of adjusting the fit – for example for a drawstring.

13. Cord

A twisted fibre, somewhere between rope and string.

14. Crochet

A method using yarn and a hooked needle to make a garment, fabric or lace.

15. Crossgrain

The line of fabric perpendicular to the selvage edge of the fabric.

16. Cross stitch

A needlework stitch that uses 2 stitches that cross over to create a cross shape.

17. Cutting mat

A self-healing board used for cutting fabric on. They are often marked with measuring



grids

18. Dart

A common technique used for shaping garments. They normally appear around the waist and bust.

19. Darn (or darning)

Usually refers to the repair of a small hole, most often in knitwear, using a needle and thread. It is often done by hand, using a darning stitch. It can also refer to any number of needlework techniques that are worked using darning stitches.

20. Double needle

2 machine needles attached to a single shaft, that sews 2 parallel rows of stitches at once with 2 spools of thread and a single bobbin.

21. Drape

The fluid way that the fabric hangs in a garment.

22. Dressmaker

Someone who makes custom clothing for women.

23. Ease

The allowance of space in a pattern for fit, comfort and style, over exact body measurements.

24. Edge stitch

Straight stitching very close to the edge of a seam, trim or outer edge.

25. Embellishment

A decorative item added to improve the look of a garment or other project. Embellishments can include buttons, beads, jewels, ornamental stitching etc.

26. Embroidery

An ancient variety of decorative needlework. Designs and images are created by stitching strands of one material onto another.

27. Face

The front of a piece of fabric (the *right* side).

28. Fat Quarter

A quarter of a metre of fabric measuring 18 x 22 inches. Used for patchwork and other craft projects.

29. Feather stitch

Hand stitch used to smoothly join 2 layers of fabric. Can also be a form of decorative hand stitch.

30. Feed-dogs

Small jagged feet that sit under the presser foot of a sewing machine. By lifting and lowering them, you have the ability to use the machine for free hand embroidery.

31. Frogging

The art of unpicking stitches.

32. Gather

A way of gathering the fabric to create fullness in the fabric, such as ruffles. It is a technique for shortening the length of a strip of fabric, so that the longer piece can be attached to the shorter piece.

33. Grain

Describes the direction of the warp and the weft in a woven fabric.

34. Hem

The finished bottom edge of a garment. The hem indicates the edge which is usually folded up and sewn, thus creating a neat and even finish.

35. Hooks and Eyes

Small and sturdy fasteners used at the points of a garment opening.

36. Interfacing

A term for a textile used on the unseen (wrong) side of fabrics. They support and stabilise the fashion fabric of the garment.

37. Jeweller's knot

A simple knot tied on a strand of thread and then pulled down on a pin or needle to the base of the thread.



38. Ladder stitch

This is a stitch used to close large openings, or, alternatively, to join 2 pattern pieces seamlessly. Stitches are made at right angles to the fabric, creating a ladder-like formation.

39. Lapped seams

Seams lapped one over the other – wrong side to right right – with seamlines meeting in the middle.

40. Lining

A piece of material used to finish the inside of a garment. Linings can hide the seam and make the garments easier and more comfortable to wear.

41. Long stitch

A stitch for tapestry or embroidery which can cover 1 – 12 threads in a single stitch.

42. Match point

A point marked on one pattern piece so it can be matched to a similar point on another pattern piece.

43. Nap

A fabric texture that runs in a particular direction, and requires all other pattern pieces to be cut facing the same orientation.

44. Needlework

A term for the handicraft of decorative sewing.

45. Notions

All of the accessories used in sewing projects. Think zippers, thread, buttons, hooks, ribbons and so on.

46. Overlay

This refers to the top layer of fabric, when there is a different one underneath.

47. Overlocker

Also known as a serger, this is a specialist sewing machine that trims and neatens the edge of fabric.

48. Patchwork

A form of needlework that involves sewing together small pieces of fabric to create a patchwork like effect. This is very popular for quilting. Can be done by hand or by machine.

49. Pattern

A template on paper or cardboard from which all of the pieces of the garment are traced onto fabric. All the parts are then cut out and assembled to create the final piece.

50. Pintuck

A narrow, stitched fold of fabric. This style is usually seen in multiples and creates a stylish and smart finish.

51. Pleat

A type of fold in the fabric created by doubling the material back on itself and securing it in place. When ironed, they create a sharp crease.

52. Presser foot

A small piece of metal near the needle on the sewing machine. It is the function that keeps your fabric in place while you sew.

53. Princess seam

A vertical seam line which gives shape to a garment in place of darts. Usually found on bodices, dresses, jackets, and blouses.

54. Quilting

The art of making a quilt – a decorative piece of bedding or wall hanging made from small pieces of fabric sewn together in batted layers.

55. Raw edge

The edge of the piece of fabric after it is cut but before it is hemmed. If left raw, the fabric might fray.

56. Right side

The front, or face of the fabric. This is the side of the fabric designed to be on the outside of the garment.

57. Ruching

Also known as gathering. Sections can be gathered into seams.

58. Running stitch

A hand-sewn stitch that weaves in and out of the material. This creates a dashed line effect.

59. Seam

The line where 2 pieces of fabric are held together by the thread.

60. Seam allowance

This is the width of the fabric beyond the seam line. The standard seam allowance is normally 1.5cm.

61. Seam ripper

A small tool used for unpicking stitches.

62. Selvedge

The woven edge of the fabric that runs parallel to the lengthwise grain – also called “selvage.” They are the finished edges that do not fray.

63. Serge

A type of sewing machine that can seam, trim, and overcast raw edges.

64. Stay stitch

Stitching placed on or just outside the seamline. It is used to stabilise the fabric and prevent it from stretching out of shape.

65. Straight stitch

A simple, straight stitched line.



Suitability of threads

a. Fabrics b. machines

Thread consumption- Sufficient seam elasticity is primarily determined by thread storage in that particular seam, which means the amount of thread (Top + Bottom thread) contained in 1-meter seam length.

- Lockstitch type contains a total of 2.80 meters of thread
- Double chain stitch contains a total of 4.80 meters of thread
- Four thread overlock stitch contains a total of 17.10 meter of thread

Right thread selection



- For solid color fabric select thread that is the same color or shade/tone darker than fabric For plaid, print or tweed fabrics select thread to the dominant color in the fabric.
- Knit fabric is best known for polyester or nylon thread as the thread will stretch a bit, giving the seams some elasticity
- If sewing a cotton knit, a cotton-wrapped polyester thread is the best
- Choose thread made from long, continuous fibers and examine the thread for “fuzziness”.
- If the thread is fuzzy, it is made of short fibers, resulting in weaker thread causing lint build-up on the machine, poor stitch formation and frequent breakage Always match the color of the thread under a standard lightbox using neutral grey color background
- Always check thread color by stitching on actual bulk fabric
- Always provide a minimum of 2.5”x2.5” fabric color swatch to thread supplier for better matching

Type of Thread-Construction

Air entangled Thread is made from continuous filaments of polyester that are entangled as they pass through a high-pressure air jet. This yarn is then twisted, dyed and wound on cones with lubricant. Air entangled threads are used in everything from seaming flags to heavy denim jeans.

Core spun Thread is made by spinning a wrap of staple cotton or polyester around the continuous filament of polyester fibers. Two or more of these single yarns are twisted together to form the thread. Core threads have fuzz on their surface giving them good lubricating characteristics and also a continuous filament core that contributes to high strength and durability. When wrapped in a cotton wrap, core threads have very good needle heat resistance. When wrapped with a polyester wrap, core threads have excellent chemical resistance and colorfastness.

Monocord Thread is made from continuous filaments of nylon that have been bonded together with a very little twist so that they look like a single cord of yarn. These threads appear to be flat and ribbon-like, which provides a high degree of resistance to abrasion and strength. Monocord threads are used in the manufacturing of shoes and other heavy duty applications.

Monofilament Thread is produced from a single nylon continuous filament. It is translucent and can blend well with many colors. Since it is a single filament, it may unravel easily if the

thread is not locked in the seam adequately. Most common use of monofilament threads is in quilting operations on quits and blind stitch operations for hems in apparel.

Spun Thread is made from cotton or polyester staple fibers that are spun into single yarns and then two or more these yarns are plied to make a sewing thread. Spun threads are round threads and have fuzz on their surfacing giving them a soft hand and good lubricate characteristics. These threads have good sewing performance with **Textured Thread** is made from continuous filaments of polyester or nylon that have been textured and then heat set to ensure proper bulk retention. These threads have high extensibility and good elastic recovery. Textured threads are ideas for over edge, chain stitch, and overstitch of the finished seam and offer good seam elasticity for garments like swimwear, children wear, performance wear etc. Textured threads are typically used in the loppers of a serge or overlocker.

Twisted Multifilament Thread is made from continuous filaments of polyester or nylon that are twisted together into a cohesive bundle and then plied to make the thread. They are then dyed, stretched, and heat set to achieve the desired physical characteristics like abrasion resistance and durability. These threads are used in performance wear and automobile upholstery.

a. fabrics- Deciding which type of fabric to make an item with is an important decision, as fabrics can have countless qualities. From natural to synthetic fibers and from knit to woven, here's a look at different fabric types and how to identify them.

C. Machine- SEWING MACHINE THREADS – how to select the best one for your project.

Earlier I used to go to my favorite notions shop and show the fabric swatch. The guy there would match it with the thread available there based on the hue of my fabric and I will go home happy. Today that is not the case. I am a bit more choosy. If you know the options available you would be too.

You want a thread that is smooth, strong and which will not tangle easily. It should be uniform in color and diameter throughout. How to choose the best one for your sewing project?

Fabric type – Heavy weight brocade needs a different type of thread than a light weight cotton fabric. Thread for knits with a little stretch should be used to sew with knit **Type of stitch you plan to make** – if you plan decorative stitches or top stitching you will need a smoother thread than for sewing the seams.

The Sewing Machine you are using – For example If it is a serger or overlock machine, it is better if you use a thinner serger thread rather than a general purpose thread, to avoid bulk

Thread size – If you find numbers on your sewing machine thread you should know that 60-90 is the average sewing thread size (for cotton and synthetic thread) and 50-60 for silk threads and the lower the thread number, the thicker the thread; you should not even attempt to use any thread which is lower than 20 size on your sewing machine. A size 30 thread can be used for sewing thick fabrics.

How to choose the correct colour thread for your project

It is comparatively easy to select the correct colour thread if the fabric is a single colour. You just have to select a color that will blend with the colour of your fabric.

Basic rule is to select a **darker color than the fabric**. If you choose a lighter or brighter color the stitches will look conspicuous against the fabric. You do not want that.

Practical;-

Prepare a list of thread types- Six Most Common Types of Threads

When it comes to different thread types, most people who work in the fluid-power industry will recognize **American pipe threads (NPT/NPTF)** as well as **SAE** or **Unified threads (UN/UNF)**. However, threads and connections are divided into six main types:

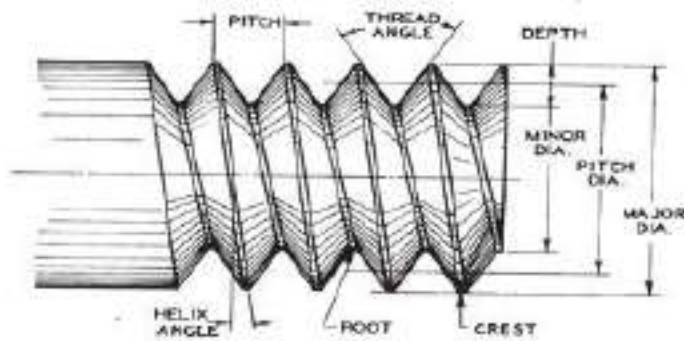
1. UN/UNF
2. NPT/NPTF
3. BSPP (BSP, parallel)
4. BSPT (BSP, tapered)
5. metric parallel
6. metric tapered

How to identify different types of threads in four easy steps

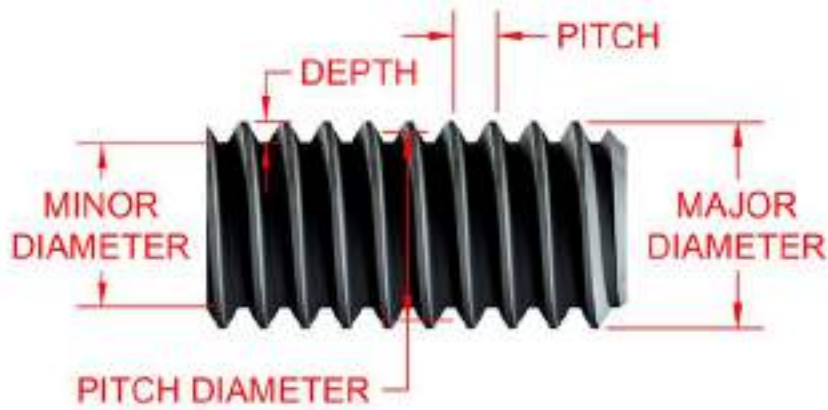
2.Prepare a chart on thread classification

Thread	Description	Plys	Tex	Thread Weight
Dual Duty XP	General Purpose	2	30	35
Dual Duty Plus	Button & Carpet	3	104	10
Dual Duty XP	Fine	2	20	60
Dual Duty XP	Heavy	3	70	15
Coats	Cotton Covered	3	30	40
Dual Duty Plus	Hand Quilting	2	40	25
Coats	Rayon Machine	2	27	40
Coats	Extra Strong & Upholstery Nylon	3	70	15
Coats	Outdoor Thread	3	90	12
Coats	Cotton General Purpose	3	35	30
Coats	Cotton Machine Quilting	3	35	30
Coats	Extra Strong For Jeans	2	60	20
Coats	Denim	2	35	30
Coats	Polyester Bobbin	1	15	70
Coats	Cotton Hand Quilting	3	50	20
Coats	Metallic	2	30	40
Coats	Transparent Polyester	1	15	70

Make a small dictionary for thread terminology-



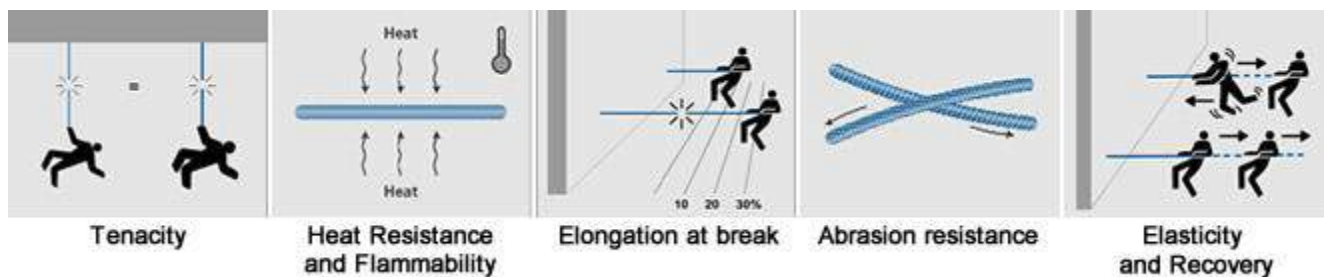
Or



4. Prepare a short report on suitability of threads for fabrics and machines- **Raw Materials**

A few important characteristics of the fibres and filaments which are used for sewing threads are:

- Elongation at break
- Elasticity and recovery
- Heat resistance and flammability
- Abrasion resistance
- Tenacity, the strength for size of the thread



The finish is ultimately determined by the sewing performance and the lubricants used, but seam strength and seam durability is directly related to the properties mentioned above.

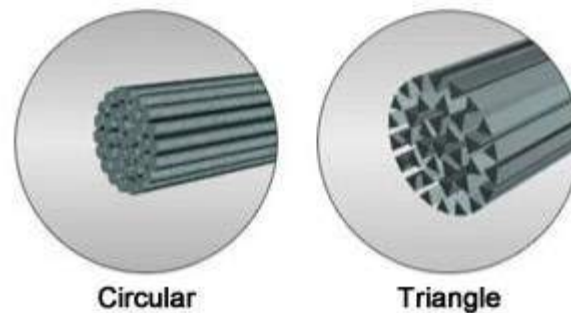
Raw Materials: Polyester or Nylon

Polyester raw materials are initially produced using polymer chips or granules, which are then melted and fed under pressure through a device known as a spinneret.



A spinneret is a metal disc which contains holes. The molten polymer is extruded through the spinneret to form continuous filaments.

For the vast majority of sewing threads the holes in the spinneret are circular, but for high lustre filaments used to manufacture embroidery threads the spinneret profile is triangular producing trilobal filaments.



These filaments are then cooled and collected together to form a continuous filament yarn. This is one of the main components for making polyester based sewing threads. This process is known as Melt spinning.

The diameter of the filaments is determined by the size of the holes in the spinneret and the pressure of the pump.

Coats produces a variety of different continuous filament threads with different physical characteristics which satisfy particular sectors of the sewing thread industry. The main continuous filament threads produced by Coats are made from Polyester or Polyamide.

Raw Materials: Polyester

This continuous filament polyester can also be used to produce polyester staple fibre. In order to do this we take a number of melt spun continuous filament yarns which are then brought together into a tow or rope-like structure. This rope like structure is then drawn or stretched to align the molecular chain thereby increasing the tenacity of the filament. It is then crimped, given a crinkle, to produce a better frictional surface.

The tow can then either be cut into a suitable regular staple length of around 38mm, in order to mimic the best quality cotton fibre to create Staple Spun yarns. Or it can be stretched broken to produce a longer, though more variable length fibre, and used to produce Tow Spun or Craq spun yarns.

For sewing threads high tenacity fibre is usually used. Despite their differing characteristics all synthetic threads must be properly lubricated if it is to perform properly at the sewing machine.
for thread.



Identify and describe parts of needle, its types, selection and needle system-

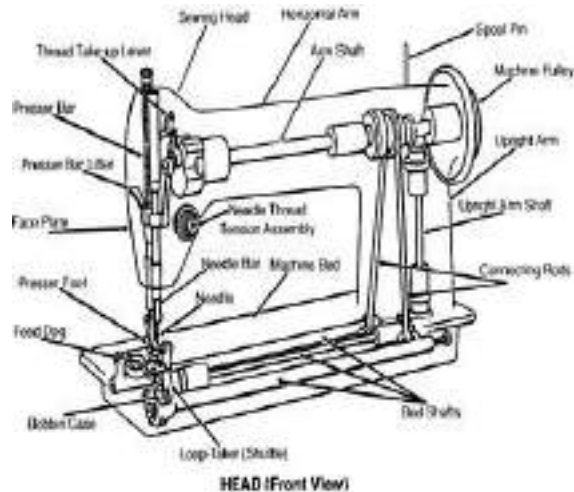
Introduction to sewing machine

A sewing machine is used to stitch the fabric and other pliable materials together with threads. Sewing machines were invented during the first Industrial Revolution to decrease the quantum of manual sewing done in garment industries. Since its invention, it has greatly improved the efficiency and productivity of the fabric, garment and needle industries. The different parts of a sewing machine and its functions help the Operator to know the functioning of a sewing machine. There are different types of sewing machine used in the manufacturing of garments and other articles, but here in this Unit, we will study only single needle lock stitch machine. A sewing machine controls the fabric with feeding devices and forms a perfect stitch to join the fabrics. It has various parts and attachments, each of which have their own importance and use. There are mainly two categories of sewing machines that is, domestic sewing machine and industrial sewing machine. A Sewing Machine Operator should have the knowledge and skills to operate the different types of sewing machine. The Operator should know about the various operations of the sewing machine, its parts.

Categories of sewing machine;-

1. Domestic sewing machines

- These are designed mainly for one person to sew individual dresses while using a single stitch type. Modern sewing machines are designed in such a way that the fabric easily glides in and out of the sewing machine, speeding the stitching process and saving time and energy. Some key points for domestic sewing machines are as follows.
- Domestic sewing machines are usually used in homes by people simply interested in sewing.
- These are commonly used by people in a variety of projects for dressmaking, and for stitching simple home furnishing items.
- With little changes, these machines can perform a variety of stitch types.
- Domestic sewing machines usually work on lightweight fabrics or work pieces.
- These machines run on significantly smaller motors compared to that of the industrial sewing machines.



2. Industrial sewing machines

1. Industrial sewing machines are a heavy-duty version of a standard basic sewing machine, and it is used in garment and other related industries.
2. Industrial sewing machines are used for mass production.
3. These are heavy-duty machines that work thousands of stitches per minute.
4. An industrial machine is well equipped with a clutch and large servo motor.
5. Industrial machines are mainly designed to perform one single specific function in assembly-line based factories.
6. Some industrial machines are designed to operate heavier than normal material.
7. Mainly, mass production requires an industrial sewing machine, which is designed to sew heavy material speedily, such as leather, canvas, and vinyl, at one time.
8. The industrial machines are named based on the function that they serve. Typical names for industrial machine class include pocket setter, buttonhole, and programmable pattern sewers, etc. For instance, a pocket industrial machine can sew 2,000 pockets in an eight-hour production cycle.
9. Programmable machines can store 10–30 or more patterns in the memory.
10. Special purpose industrial machines can give better output in production, for example, buttonhole machines, pocket setter, pattern sewer. Industrial sewing machines are larger, faster, more complex, and more varied in their size, price and task. The following are the comparison between domestic and industrial sewing machines:
 1. The industrial machine is faster, stitching from 3000–6000 stitches per minute, while the fastest domestic sewing machine stitches not more than 1500 stitches per minute.
 2. The presser foot (See Session 3) on a power machine is raised and lowered with a knee lift to a special foot pedal. On domestic machines, it is generally operated manually using a lever at the back of the needle bar.
 3. Lubrication is done automatically in industrial sewing machines whereas it is done manually in domestic sewing machines.



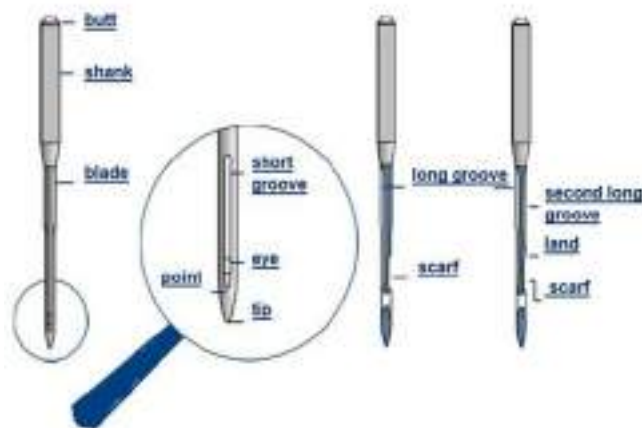
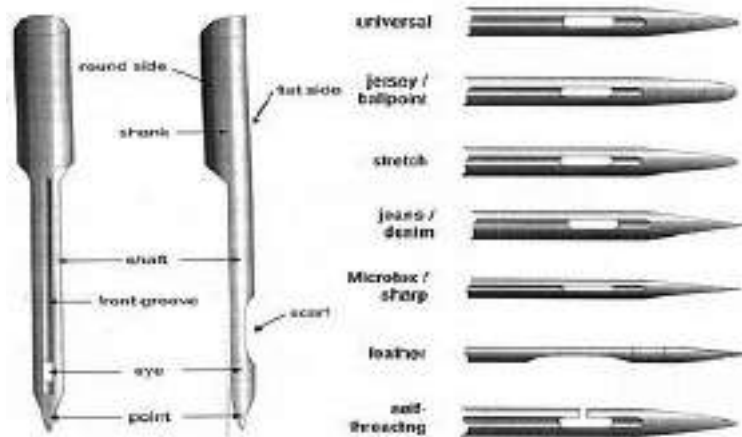
Sewing machine needle

A **sewing machine needle** is a specialized [needle](#) for use in a [sewing machine](#). A sewing machine needle consists of:^[1]

- **shank** - clamped by the sewing machine's needle holder
- **shoulder** - where the thick shank tapers down to the shaft
- **shaft** - a length suitable for driving the eye and thread through the material and down to the [bobbin](#)
- **groove** - cut in the front of the shaft to allow the thread to lie more closely to the needle as it passes through the fabric
- **scarf** - provides extra room for the hook or shuttle to pass close by
- **eye** - carries the thread
- **point** - penetrates the material by either parting the threads or cutting a hole in the fabric

Domestic sewing machines, designed for use in homes as opposed to commercial sewing operations, use a common needle type (including a standardized length, as well as *shank* shape and diameter) referred to as "Groz-Beckert 130 / 705," "HAX1" or "15x1" needles.^[2] Needles labeled as "universal" needles are of this type and are generally the type of needles found in retail sewing supply shops. The 15x1 needle is available in different standardized *shaft* diameters suitable for sewing different fabrics (see the section on [Size codes](#) below).

For commercial/industrial sewing machines, there are several proprietary sizes and types of needles which are not mentioned in this article.



Construction

The majority of sewing machine needles are made of various grades of hardened steel coated with either [nickel](#) or [chromium](#), though certain specialty needles are coated with [titanium nitride](#) on top of chromium. Titanium nitride is a reflective golden-colored ceramic material which reduces abrasion allowing the needle to stay sharper longer and last many times longer than other varieties. The titanium does not make the needle any stronger in regards to bending, however, and such needles will bend and snap just as easily as any other.

Nickel plating is the least expensive and least durable form of plating. Chrome plating lasts longer and gives better abrasion resistance. Titanium nitride on top of chromium is the most expensive and is superior in performance to both chrome and nickel.

Size codes

More than a dozen modern conventions exist for numbering the sizes of sewing machine needles, though only two remain in common use: the American (established and propagated by [Singer](#)) and the international system (also called the "European", "number metric" or "NM" system). The European designation, established in 1942, corresponds to the diameter of the needle in hundredths of a millimeter at a non-reinforced point above the scarf. In both cases, a larger number corresponds to a larger, heavier needle.

Most sewing machine needles will have packaging that gives both of these numbers in its size description — (e.g. as either 100/16 or 16/100). The length of all sewing machine needles has been standardized and does not require a separate code.

The metric designation is the actual needle diameter in hundredths of a millimeter.^[3] The following chart gives a comparison of the two systems:^[4]

Universal needle shaft diameters			
Diameter	American size	International size	Fabric types
0.60 mm (0.024 in)	8	60	
0.65 mm (0.026 in)	9	65	Very fine fabrics (silk, chiffon, organza, voile, lace)
0.70 mm (0.028 in)	10	70	
0.75 mm (0.030 in)	11	75	
0.80 mm (0.031 in)	12	80	Light weight fabrics (cotton, heavier silks, synthetics, spandex, lycra)
0.90 mm (0.035 in)	14	90	Medium weight fabrics (velvet, fine corduroy, linen, muslin, tricot, knits, fleece)
1.00 mm (0.039 in)	16	100	Heavy weight fabrics (denim, leather, canvas, suiting)
1.10 mm (0.043 in)	18	110	
1.20 mm (0.047 in)	19	120	Very heavy weight fabrics (heavy denim, upholstery fabric, faux fur)
1.25 mm (0.049 in)	20	125	
1.30 mm (0.051 in)	21	130	Extra heavy fabrics

Types

Most currently manufactured needles are designated according to "type", and fall into the following categories:

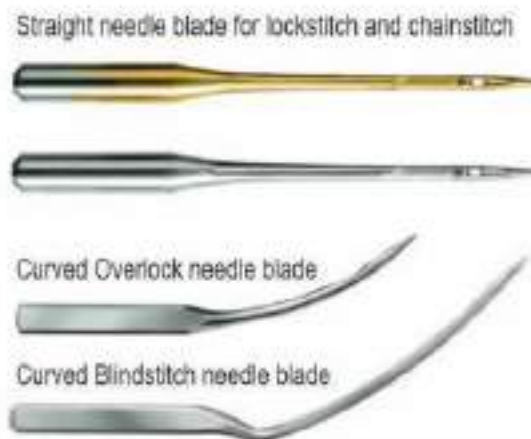
Type	Description
Universal	The universal class of needles is used on domestic machines. "Universal" refers to the shape of the needle shank and length of the needle rather than the actual sewing application or point. The most notable feature of universal needles is the flat face on the needle shank which helps to ensure the needle is inserted correctly. A universal class needle is designed to be used on virtually any domestic sewing machine. They do not fit industrial or commercial machines.
Embroidery	These needles come with an extra large eye and a specially shaped scarf to prevent embroidery thread from shredding.
Ballpoint	Similar to a universal needle but has rounded edges and is not tapered the same way. Intended for closely knit fabrics where the rounded tip will push the weave out of the way rather than cut through it.
Jeans/ Denim	Intended for tightly woven cottons such as canvas. Has a strong, sharp point and very slender eye.
Wing	Needle has distinct "wings" on either side of the eye which hold the fabric open. Often used on hems and borders, and for decorative finishing. A larger size needle will leave a larger hole in the final piece of sewn fabric.
Leather	These have a distinct triangular point to help the needle make a large, clean hole in non-woven materials like vinyl.
Metallic	Similar to embroidery needle with a large eye and extra long scarf, but also includes a Teflon coating to the eye so that metallic threads will not shred when used.
Quilting	Designed with an extra strong shaft and with a tapered point to penetrate multiple layers of woven fabrics without breaking and without shredding either the thread or the fabric being sewn.
Sergers/ Industrial	These needles can only be used in serger and overlocking machines.
Microtex/ Sharps	More slender and sharper than the universal needle. Suitable for fine woven fabrics, but also compatible for quilting and appliqué .
Stretch	These needles are intended for use on fabrics with a significant amount of Spandex or similar fabric content. Rounded tip and specialized scarf and eye to prevent skipping.
Topstitching	These have exceptionally sharp points and a very large eye to accommodate thick decorative topstitching threads. Very similar to the leather needle.

Needles set in pairs or in groups of three on a single shaft designed to sew multiple, usually decorative, threads at once. These require specialized machinery to accommodate the extra needles, as well as multiple thread feeds. The twin or triple designation is usually accompanied by another needle type specification such as "stretch" or "denim", etc.

The Basic Functions of a Needle

- To make a hole in the fabric or material
- To carry the needle thread through the material or fabric
- To help form a needle thread loop which can be picked up by the hook or lopper

Needle Parts / Identification - Blades



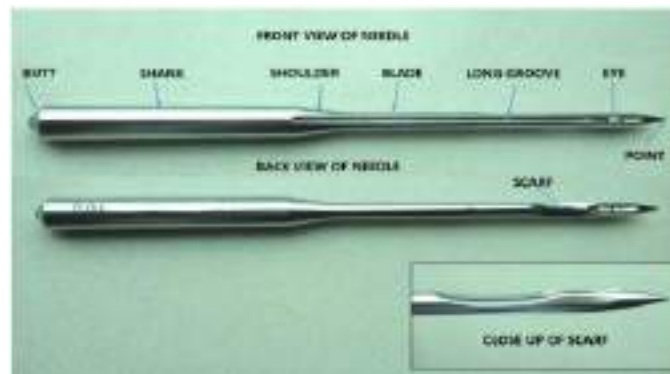
- There are two basic types of sewing machine needle blades and these are either straight or curved.
- The straight needle blades are the most common and used in a wide range of sewing machines (Lockstitch and Chain stitch).
- Curved needle blades are mostly used on blind stitching machines. (Hemming trousers or skirts) However, some over edge machines also use needles with a curved blade.

Curved Needles in a Blind stitch and over edge machine

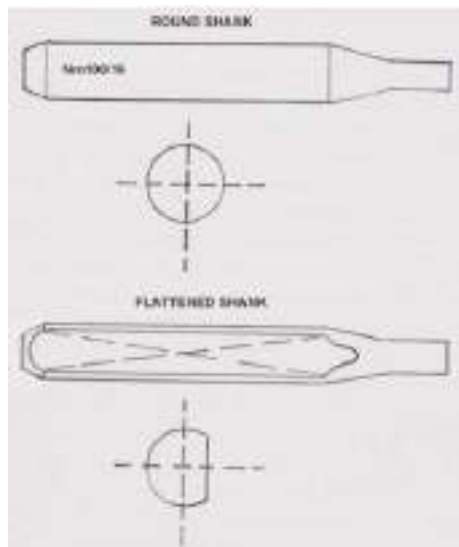


Needle Parts / Identification

A needle has various parts to execute different functions during the sewing operation.

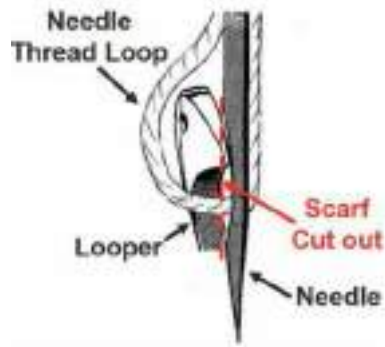


To find out all the different needle parts please read our [Needles 101](#) technical bulletin. Below we have gone into more detail on the shank and the scarf part of the needle:



Shank

- Shank: The Needle size and manufacturers trade mark are also stamped into the shank and as a rule the size is denoted as NM which is the metric sizing
- There are different shank types available for different machines, the two most common are the round and flattened shank
- The round shank is the most common but when inserted into the needle bar it has to be aligned by hand to ensure the scarf is in alignment with the hook or lopper
- The flattened shank lines up with the flat section inside the needle bar and ensures there is always correct alignment with the sewing implement (hook or lopper)



Scarf

- The scarf is the "trough" shaped cut out in the blade of the needle
- This permits the lopper (chain stitch) or sewing hook (lockstitch) to be set closer to the needle increasing the potential for good pick up the needle thread loop.

Needle Finishes

These are some of the most common finishes or needle coatings as outlined below. Needle choice is dependent on the stitching conditions and care needs to be taken when choosing a particular finish. The different coatings result in a different hardness to the needle making the needle stronger or more resilient to coated fabrics.

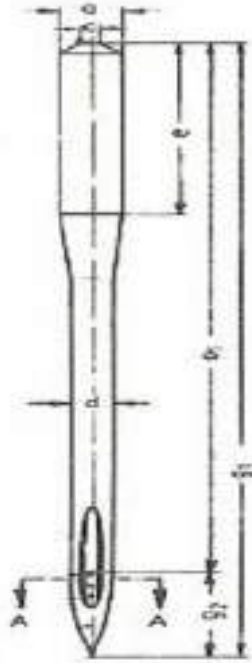


- **Chrome:** This is the most common coating used and protects the needle from corrosion. A hard chrome coating gives the sewing machine needle a high abrasion resistance. These needles can be used in all types of sewing machines in a wide range of end uses
- **Hardened steel / Nickel:** These needles can prevent rusting and protect the needle from friction during sewing. However, they deteriorate when used in high friction areas (thick dense fabric) and at high machine speeds. For this reason they are best suited only for basic stitching operations
- **Titanium Nitrate:** Is used to give a hard and smooth surface to the needle. These needles often have a gold colour finish. Titanium coating resists adhesives, improves needle wear and penetration of coarse and densely woven fabrics.

It can also improve a sewing needles' expected lifetime substantially compared to the other coatings.

- Others: There are various other needles finishes available with non stick / anti adhesion coating designed to reduce adhesion of melted synthetic fibers to the needle. The needle remains cleaner longer and skipped stitches and thread breakage are minimized
- Ceramic coating: This is for very specialized areas. It reduces heat by 20-25% and can prevent static electricity before it occurs

The different finishes will effect the performance of the needle with regards to heat resistance, needle hardness and wear and tear. So care needs to be taken when selecting the needle finish in that it is fit for purpose.



Needle Systems

Needles are manufactured for different sewing machines using a "needle system" coding. This is based on the needle specifications needed to match the sewing machine specifications / stitch forming implement. So each system code is based on that needles specifications; length of blade, shank thickness, type of eye, size of eye etc.

The needle system can be numerical or alpha numerical and these designations are often created by the sewing machine manufacturer in conjunction with the needle manufacturer. Different sewing machine companies may use different system numbers for the same needle! (135x17 and DPX17 are the same needle but used by two different sewing machine manufacturers).

Do you have the correct needle system for a sewing machine?

It is critical to establish that you are using the correct needle system for the correct sewing machine.

Details of the correct system will be found In the sewing machine manual / instruction book normally under "specifications". A printed sticker may also be attached to the sewing machine detailing the system number.

The needle system doesn't tell you the needle size (blade thickness) or type of point, this information is on the needle packet.

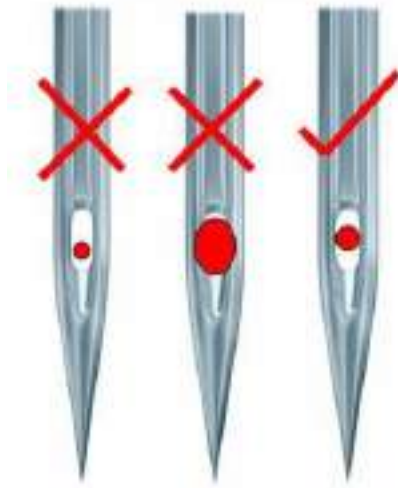
The size of a needle is based on the needle blade width, which is measured in millimeters and represents the needle size. The needle size / thickness is also stamped on the needle shank.

It gives an Nm (metric) size and may include the Singer needle size, for example 100/16. (Nm100 – Singer 16).

The Nm coding is based on a metric sizing and is the most common used.

- Example – An Nm 100 needle size represents a needle blade width of 1mm
- Example – An Nm 75 needle size represents a needle blade width of 0.75mm

Needle, Thread and Material Relationship



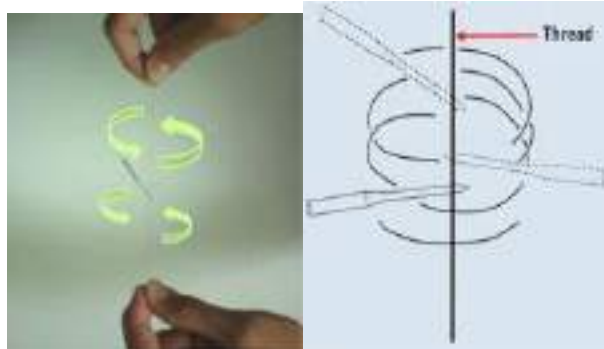
Selection of correct needle size is critical to the success of a quality sewn seam. Some important factors to consider are:

- The material type and construction of garment
- The material thickness to be sewn
- The machine type used

The sewing thread selected for the garment should move freely through the eye of the selected needle to ensure smooth passage during sewing.

The general guideline is that the thread should fill 70% of the eye of the needle.

How to test needle to thread size.



To confirm that the correct size thread needle combination is used the following test can be carried out:

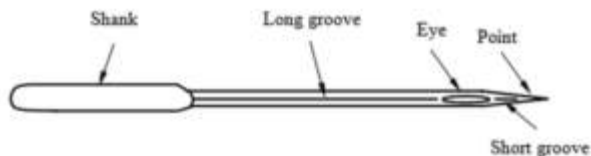
- Take half a meter of the thread being used on the machine and thread it through the eye of a loose needle
- Hold the thread vertically with the needle at the top
- If the needle is too big, it will drop to the bottom of the thread
- If the needle is too small, it will stick at the top of the thread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

Types of Needles for Sewing Machine

For beginners, how to identify sewing machine needles is a common question. There are various types of needles for various purposes, but the parts of a sewing machine needle differ in their construction. This post is an overview and check out more elaborated sewing needles codes definitions etc on [types of needles for sewing machines](#).

Many people know that there are different types of thread depending on your project, but did you also know there are different sizes and *types of needles*. Different Types of Needles for Different Fabric. Regular Point Needle (*Sharp*): *Universal Point Needle*: *Ball Point Needle*: *Embroidery Needles*: *Quilting Needles*: Topstitching Needle: Wedge point Needle etc... Whether sewing by hand or machine, you will find that there are sewing *needles* for every task.

Here's the anatomy of sewing machine needle to identify it better.



- **Shank:** The shank is the head of the needle that sits into your sewing machine socket. Set the flat side to the back.
- **Blade:** The blade determines the needle size. We'll look into needle sizes further in this post.
- **Shaft:** The shaft is the body of the needle which has an eye at the end to run the thread through.
- The **point** varies according to the type of the needle based on usage.

Types of needles;-

1. Universal

The point is slightly rounded. Very good for woven fabrics like cotton. It is sharp for knits and good for woven fabrics.

2. Ballpoint

This needle is good for knits. It is **rounded point** slightly such that the needle passes between the fabric threads rather than pierce them. Also suitable for heavy knits and spandex.



3. Quilting

It has a **tapered point** designed for thick layers and intersecting seams. This is the best choice for perfect machine quilting. Quilting Needles can also be used for piecing.



4. Sharp

This needle has a **sharp point and narrow shaft** for piercing wovens. Suitable for finely woven fabric like **chintz, silk, lightweight faux suede, and microfiber**. Also great for heirloom sewing or any other type of topstitching.



5. Leather

The leather needles have a **wedge-shaped point** which is ideal for sewing **leather, suede, vinyl, heavy faux suede, and thick non-woven fabric**. This needle leaves permanent holes.

Avoid backstitch so that the fabric doesn't get perforated. Instead, tie the thread ends. Not for use with knits.



6. Denim

Denim Needles have a **sharp point and strong shaft**. These needles can stitch through many layers without breaking. Use on **heavy, tightly woven fabric, like denim, canvas, and duck**.



7. Topstitching

It has an **extra large eye, large groove, and sharp point** for heavy decorative threads, embroidery thread, or 2 even two strands of all-purpose thread.

8. Stretch

These needles are for lightweight knits such as **Silk Jersey, Lycra, or anything with high elasticity**. For these fabrics a ballpoint needle may skip stitches, so switch to stretch needle.

9. Serger

These are specifically designed for Over lock machines. It has **sharp point** and used on all fabrics.

10. Embroidery

These are needles for machine embroidery, when sewn with **Rayon, Acrylic, or speciality threads**.

11. Metallic

It has an **extra large eye, large groove scarf, and sharp point** which goes well with **monofilament and metallic thread**. This needle must be used when sewing metallic thread.

12. Wing

It has flared 'wings' on each side of the shaft. Used for heirloom and decorative stitches on Batiste and linen.

13. Twin

It has a **single shaft connecting two needles**. This needle is used when the sewer wants perfectly parallel stitches. Usually seen on jeans and decorative stitching.

14. Triple

This needle only comes as a universal needle. Just like the Twin needle, the Triple needle has a single shaft connecting three needles. The machine must be Triple needle capable.

15. Spring

This needle is most commonly used for free motion sewing, embroidery, and monogramming. The wire coiled shaft acts as a presser foot to depress and release the fabric. Only available in universal, stretch, and quilting.

- a. **Standard needles;- Sewing machine needles** are sized in metric and imperial. The smaller the numbers the finer the **needle**. The **size** of a **needle** is calculated by its diameter, thus a 90 **needle** is 0.9mm in diameter.

The configuration of these needles is based on the particular fabric to be sewn.

Universal needle

Uses: Safest needle choice for most fabrics.

Configuration: Has slightly rounded point and elongated scarf to enable almost foolproof meeting of needle and bobbin hook.

Troubleshooting: When fabric is not medium-weight woven, consider needle specifically suited to fabric. For example, size 18 universal needle works on heavy denim, but size 18

Configuration: Both have rounded points that penetrate between fabric threads rather than pierce them. (Stretch-needle point is slightly less rounded than ballpoint.)

Troubleshooting: Test-stitch knits with ballpoint, stretch, and universal needles to see which doesn't cut yarn and yields best results. If ballpoint skips stitches, try stretch needle.

Microtex and sharp needles

Uses: Sewing microfiber, silk, synthetic leather; precisely stitching edges; and heirloom sewing.

Configuration: Has an acute point.

Troubleshooting: Essentially trouble-free, but fabric may require a Teflon, roller, or even/dual-feed presser foot.

Leather needle

Uses: Excellent for sewing natural leather.

Configuration: Has slight cutting point (almost like an arrowhead).

Troubleshooting: On synthetic leather, unless it's very heavy synthetic, cuts rather than pierces stitch hole and can tear leather. Most synthetic leathers require Microtex or sharp needle.

Denim (jeans) needle

Uses: For heavyweight denim, duck, canvas, upholstery fabrics, artificial leather, and vinyl.

Configuration: Has deeper scarf, acute point, and modified shaft to sew without pushing fabric down into needle-plate hole. Goes through fabric and meets bobbin hook better on dense woven fabrics.

Troubleshooting: If stitches skip when sewing very heavy fabrics, try larger needle and sew more slowly or walk needle through fabric (by turning hand crank).
orks better.

Ballpoint and stretch needles

Uses: Ballpoint needle for heavier, looser sweater knits; stretch needle for highly elastic fabrics, like Spandex, or Lycra.

Configuration: Both have rounded points that penetrate between fabric threads rather than pierce them. (Stretch-needle point is slightly less rounded than ballpoint.)

Troubleshooting: Test-stitch knits with ballpoint, stretch, and universal needles to see which doesn't cut yarn and yields best results. If ballpoint skips stitches, try stretch needle.

Microtex and sharp needles

Uses: Sewing microfiber, silk, synthetic leather; precisely stitching edges; and heirloom sewing.

Configuration: Has an acute point.

Troubleshooting: Essentially trouble-free, but fabric may require a Teflon, roller, or even/dual-feed presser foot.

Leather needle

Uses: Excellent for sewing natural leather.

Configuration: Has slight cutting point (almost like an arrowhead).

Troubleshooting: On synthetic leather, unless it's very heavy synthetic, cuts rather than pierces stitch hole and can tear leather. Most synthetic leathers require Microtex or sharp needle.

Denim (jeans) needle

Uses: For heavyweight denim, duck, canvas, upholstery fabrics, artificial leather, and vinyl.

Configuration: Has deeper scarf, acute point, and modified shaft to sew without pushing fabric down into needle-plate hole. Goes through fabric and meets bobbin hook better on dense woven fabrics.

Troubleshooting: If stitches skip when sewing very heavy fabrics, try larger needle and sew more slowly or walk needle through fabric (by turning hand crank).



b. Decorative needles;- decorative needles are various type The configuration is designed to wed thread to fabric for surface embellishment.

Topstitching needle

Uses: Topstitching.

Configuration: Has extra-acute point, extra-large eye, and large groove for heavy thread.

Troubleshooting: Use smallest size needle that accommodates your thread to avoid punching large holes in fabric

Embroidery needle

Uses: Machine embroidering or embellishing with decorative thread.

Configuration: Has light point (neither sharp nor ballpoint) and enlarged eye to keep decorative threads from shredding or breaking, and prevent skipped stitches.

Troubleshooting: If thread still shreds on dense or heavily stitched design, use larger size needle **or Metallica needle.**



Decorative embroidery needles, scissors, colored thread and frame.



Hand sewing needles & accs steel needles for yarn knitting

c. special purpose needle;- These needles are used only with front-to-back threading machines with zigzag features. Make sure your throat-plate needle hole is wide enough to accommodate needle's width, and zigzag width function is set at zero to prevent sideways movement. These needles are used only with front-to-back threading machines with zigzag features. Make sure your throat-plate needle hole is wide enough to accommodate needle's width, and zigzag width function is set at zero to prevent sideways movement.

Hemstitch (wing) needle

Uses: Hemstitching or heirloom embroidery on linen and batiste.

Configuration: Has fins on sides of shank to create holes as you sew.

Troubleshooting: Stitch is more effective when needle returns to same needle hole more than once. If needle pushes fabric into needle hole, put stabilizer under fabric.

Twin (double) needle

Uses: Topstitching, pin tucking, and decorative stitching.

Configuration: Two needles on single shaft produce two rows of stitches. Measurement between needles ranges from 1.6mm to 6mm, and needles come with universal, stretch, embroidery, denim, and Metallica points.

Troubleshooting: Be sure throat plate allows for distance between needles.

Triple needle

Uses: Same uses as for double needle.

Configuration: Cross bar on single shaft connects three needles to sew three stitching rows. Comes with universal point in 2.5mm and 3mm widths.

Troubleshooting: Same as for double needle.

Spring needle

Uses: Free-motion stitching with dropped feed dogs.

Configuration: Has wire spring above point to prevent fabrics from riding up onto needle, eliminating need for presser foot.

Troubleshooting: Before using, practice free-motion stitching with heavy regular needle, paper, and dropped feed dogs. Don't pull paper/fabric; instead gently guide it through stitching. Wear safety glasses for free-motion work, since needles often break.



Hemstitch (wing) needle

Uses: Hemstitching or heirloom embroidery on linen and batiste.

Configuration: Has fins on sides of shank to create holes as you sew.

Troubleshooting: Stitch is more effective when needle returns to same needle hole more than once. If needle pushes fabric into needle hole, put stabilizer under fabric.

Twin (double) needle

Uses: Topstitching, pin tucking, and decorative stitching.

Configuration: Two needles on single shaft produce two rows of stitches. Measurement between needles ranges from 1.6mm to 6mm, and needles come with universal, stretch, embroidery, denim, and Metallica points.

Troubleshooting: Be sure throat plate allows for distance between needles.

Triple needle

Uses: Same uses as for double needle.

Configuration: Cross bar on single shaft connects three needles to sew three stitching rows. Comes with universal point in 2.5mm and 3mm widths.

troubleshooting: Same as for double needle.

Spring needle

Uses: Free-motion stitching with dropped feed dogs.

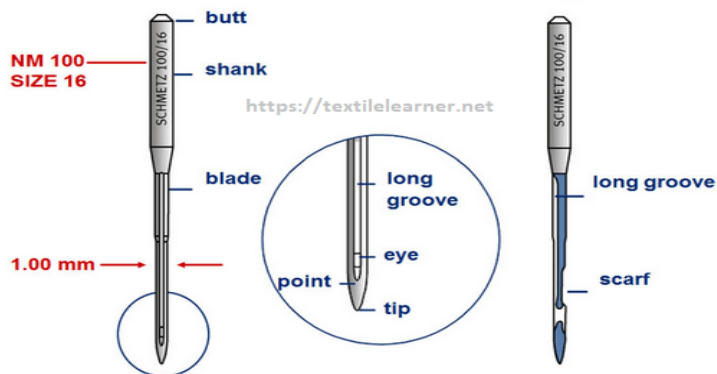
Configuration: Has wire spring above point to prevent fabrics from riding up onto needle, eliminating need for presser foot.

Troubleshooting: Before using, practice free-motion stitching with heavy regular needle, paper, and dropped feed dogs. Don't pull paper/fabric; instead gently guide it through stitching. Wear safety glasses for free-motion work, since needles often break.

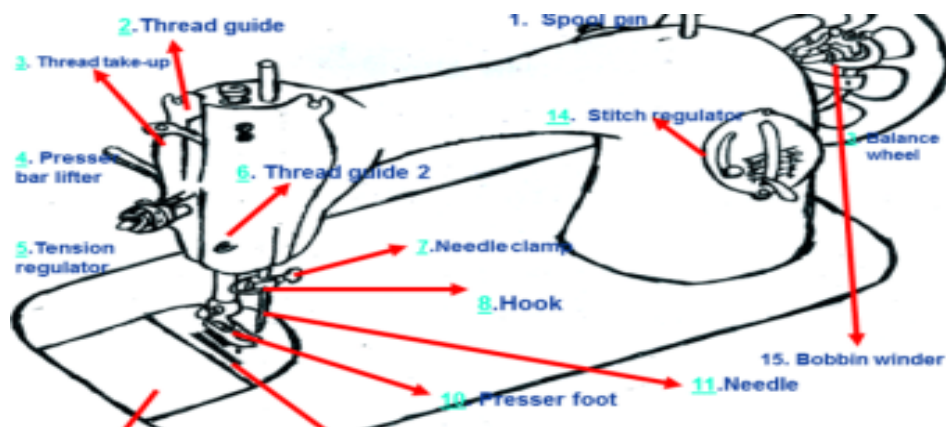
Practical:-

Make a sketch of various parts of needle in practical file-

1.



2.

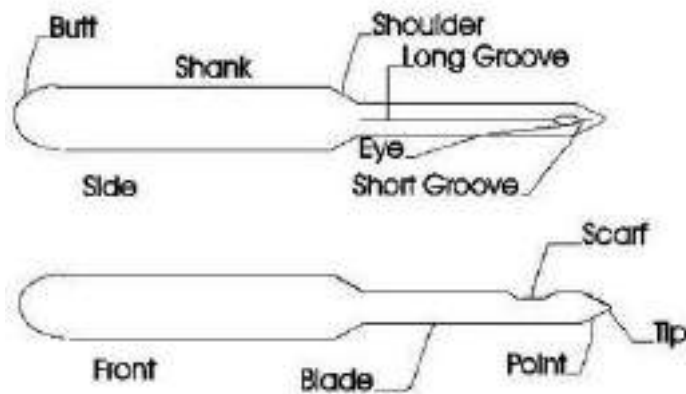


2. Prepare a table on types of needles in practical file-

SEWING MACHINE NEEDLE SIZE...			
TYPE	SIZE		FABRIC WEIGHT
UNIVERSAL	60	9	VOILE, CHIFFON, VERY DELICATE
	70	10	VOILE, SHEERS, DELICATE
	75	11	VOILE, CHIFFON, ORGANZA
	80	12	COTTON LAWN, RAYONS, POPLIN, LIGHT WOOL
	90	14	MEDIUM, CALICO, LINEN, COTTON SATEN
	100	16	CORD, DENIM, GABERDINE, HEAVY SUITING
110	18	HEAVY DENIM, LEATHER, UPHOLSTERY	
SHARPS	70	11	VOILE, DELICATE, MICROFIBRE
	80	12	SHIRTING, MICROFIBRE, WOOL WORSTED
	90	14	TOP STITCHING
BALL POINT	70	11	LIGHT KNITS, TRICOT
	80	12	INTERLOCK, PICOT
	90	14	MEDIUM - HEAVY KNITS
STRETCH	75	11	LIGHT LYCRA, ELASTICATED FABRICS
	90	14	ELASTIC, HEAVIER LYCRA, STRETCH FABRIC
JEANS	90	14	DENIM, TIGHTLY WOVEN FABRICS
	100	16	SPEAR POINT
LEATHER	90	14	FOR ALL LEATHER AND VINYL
	100	16	NOT FOR USE ON MICRO-SUEDE
METAFIL	80	90	DECORATIVE SEWING USING METALLIC THREAD

EDWIN TYNE © TOMO KAYNE 2018

Anatomy of a Sewing Needle



3. Prepare a short report on needle system- Needle Production Process

This gives a basic understanding of some of the processes.

There are over 30 stages to transform needle wire into a finished needle and these include just a few of the processes in the illustration below.

Unit 3: Machines for Seam Finishes

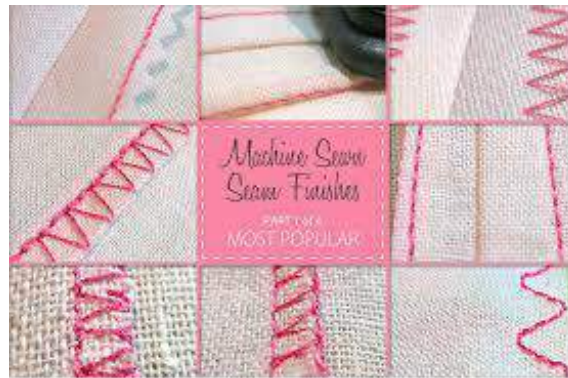
What is Seam Finish?

Seam mean-

- 1: The fold, line, or groove made by sewing together or joining two edges or two pieces of material.
- 2: A layer in the ground of a mineral or metal. More from Merriam-Webster on **seam**.

A **seam finish** is a treatment that secures and neatens the raw edges of a plain **seam** to prevent ravelling, by sewing over the raw edges or enclosing them in some sort of binding. On mass-produced clothing, the **seam** allowances of plain **seams** are usually trimmed and stitched together with an over lock stitch using a serger.

This term is usually equated with a serger (also called an over locker), but many home **sewing machines** also have an over lock **stitch**. **Finishing** the raw **edge** is the main purpose of this **stitch**. It has an extra line of **stitching** along the raw **edge** for added strength.



Importance of Seam Finishes

Seam finishes are a very **important** part of the **sewing** process. They make the inside of your garment or project look just as neat and clean and professional as the outside, and it prevents the fabric from fraying and creating a mess.

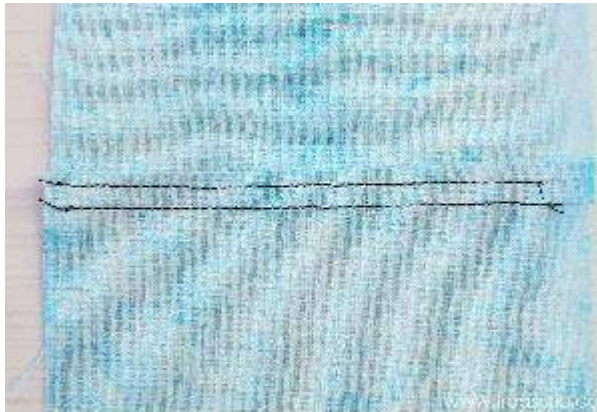
As they join the material together to create the item. **Seams** are used for hems and to finish necklines and edges. **Seams** add shape through elements like darts, which are used to shape hips, waists, and bust lines.

Different types of Seam Finishes

1. **Plain seam.** A plain seam is the simplest type of seam and can be used on almost any item. A plain seam is defined as any seam that attaches two pieces of fabric together with the wrong sides facing. The wrong side is the side of the fabric that doesn't face outward when the garment or item is completed. The stitch length or type of stitch doesn't matter, as long as it is one stitch line and it attaches two pieces of fabric.



2. **Double-stitched seam.** This type of seam is just like a plain seam except there are two lines of stitching attaching the fabric for extra strength.



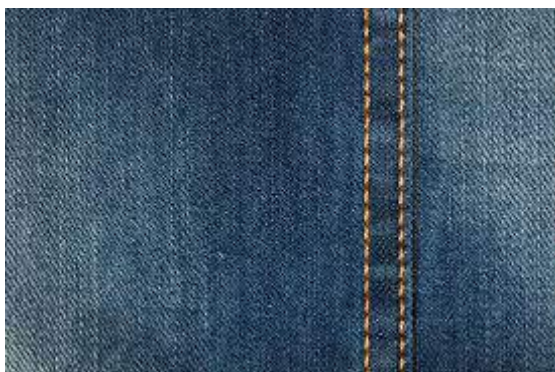
3. **French seam.** A French seam should only be used on delicate, lightweight fabric, like chiffon or organza, as the seam uses a lot of material and can get bulky with heavier fabrics. Since the edges of the fabric do not show with this technique, a French seam is also great for garments where you want to hide the seams, like an unlined jacket.



4. **Bound seam.** A bound seam looks like a French seam on the right side of the fabric. There are no visible stitches on the right side of the fabric, and on the opposite side, the fabric edges are neatly enclosed.



5. **Flat-felled seam.** A flat-felled seam is an extremely strong closed seam that is often used for items like jeans. It covers the fabric's raw edges well and keeps the seam flat. Like the french seam, it is a double-stitched, closed seam.



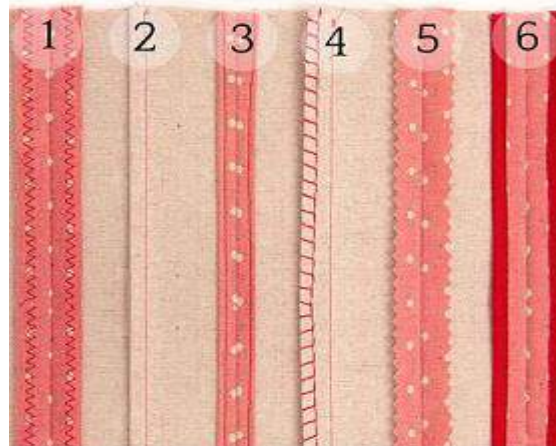
6. **Welt seam.** A welt seam is also frequently used for jeans, as it is very strong, but it is less bulky than the flat-felled seam because it is not enclosed and the raw edge of the fabric is visible.



7. **Lapped seam.** A lapped seam is typically used with fabrics that don't fray, such as leather and fleece. For a lapped seam, the right side of the fabric faces up and the pieces overlap, instead of right or wrong sides together.



6 Easy SEAM FINISHES with a regular machine



Lockstitch

The lockstitch uses two threads, an upper and a lower. Lockstitch is named because the two threads, upper and lower, "lock" (entwine) together in the hole in the fabric which they pass through. The upper thread runs from a spool kept on a spindle on top of or next to the machine, through a tension mechanism, through the take-up arm, and finally through the hole in the needle. Meanwhile, the lower thread is wound onto a bobbin, which is inserted into a case in the lower section of the machine below the material.

Lockstitch sewing machine DDL-9000BT is a fundamental **sewing machine** used to stitch two pieces of fabric together for the **sewing** of a dress shirt, suit, or woman's garment.

The main **function** of the take-up mechanism of the **lockstitch sewing machine** is to create a **stitch**, together with the needle and the bobbin hook. Thus, the problem can be solved by means of different computer software applications.

Types of lock stitch sewing machine

There are two types of **lock stitch sewing machine** used in a garments factory.

1. Single needle lockstitch machine
2. Double(two) needle lockstitch machine

1. Single needle lock stitch machine

A single needle lock stitch machine is called a plain needle sewing machine. ... Modern single needle lockstitch has a thread trimmer which operates at the highest speed of its kind. Lockstitch machine is the most commonly used sewing machine in the apparel industry, especially in woven garments.

Single Needle Lockstitch Sewing Machine is used for stitching light and moderately heavy material.

Go to the link and watch video: https://www.youtube.com/watch?v=LazyMzdpJ_I

Features of Single Needle Lock Stitch Machine:

1. Two thread need for a machine, one for needle and another one for bobbin
2. Needle thread set in the upper side of fabric and bobbin thread set in the lower side of the fabric in stitch
3. Stitching type only lock stitch
4. Machine speed is 4000-5000 RPM
5. 1 needle in every machine
6. Edge cutting, automatic bobbin winding
7. Less noise, low vibration, no radiation, and environment-friendly
8. SPI generally 7-9
9. Sewing Shirts, Jackets, Suits, Over-coats, Bed covers, Curtains, Children's Clothes, Bags, Leather, Wool, Chemical fibre, and Canvas.

2. Double needle lockstitch machine

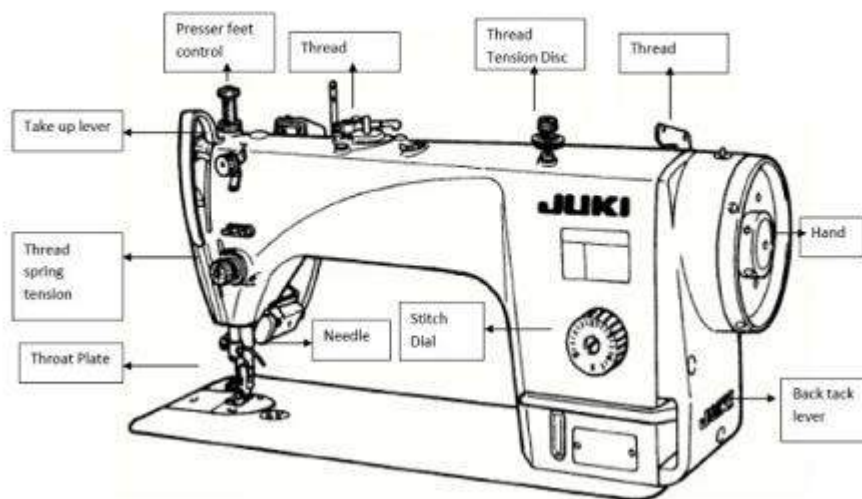
A **double needle lockstitch machine** works on the same principle as the single **needle machine** by using two **needles** and two bobbins thus resulting in two parallel rows of **lockstitch**. This technique of twin **needle sewing** is also popularly known as **double needle sewing**.

A **twin needle** or **double needle** is **used** to produce two rows of parallel stitches on top with zig-zag looking interlocked stitches underneath. In woven fabrics, it is purely decorative but in stretch fabrics, it creates an attractive hem that will not break when stretched.



Double needle lockstitch sewing machine works in same principle of single needle lockstitch sewing machine. But in this case 2 needles and 2 bobbins are used and thus resulting in two parallel rows of lockstitch. This technique of twin needle of sewing is also popularly known as double needle sewing. Double needle **lockstitch** sewing machine is used to sew box pockets in jackets, light jeans, pajamas and many more.

Parts of Single Needle Lock Stitch Sewing Machine



SINGLE NEEDLE LOCK STC

The parts of Single Needle lock stitch sewing machine are given below-

1. Spool pin,
2. Bobbin binder spindle,
3. Bobbin winder stopper,
4. Stitch width dial,
5. Pattern selector dial,
6. Hand wheel,
7. Stitch length dial,
8. Reverse stitch lever,
9. Power stitch,
10. Bobbin winder thread guide,
11. Thread tension dial,
12. Thread take-up lever,
13. Needle clamp screw,

14. Presser's foot,
15. Bobbin cover,
16. Bobbin cover release button,
17. Feed dog,
18. Needle,
19. Needle plate.

Functions of Sewing Machine Parts:

Functions of each sewing machine parts have discussed below:

1. Spool pin:

The main function of the spool pin is to hold the spool of thread.

2. Bobbin binder spindle:

During winding, the bobbin is placed here.

3. Bobbin winder stopper:

When the bobbin reaches its optimum capacity then the bobbin winder stopper stops the bobbin winding.

4. Stitch width dial:

The main object of the stitch width dial is to control the [zigzag stitch](#).

5. Pattern selector dial:

The pattern selector dial is to set the symbol of the desired stitch pattern.

6. Hand wheel:

The hand wheel is used to raise and lower the need, which is situated on the right side of the **sewing machine**.

7. Stitch length dial:

Stitch length dial is used to control the length of the stitch.

8. Reverse stitch lever:

The machine will sew in the reverse while the lever is pushed.

9. Power switch:

Power switch means the off-on office of the sewing machine. Normally power switch is located on the right side of the machine.

10. Bobbin winder thread guide:

These types of thread guides are used during bobbin winding.

11. Thread tension dial:

A thread tension dial is used to control the tension on the top thread.

12. Thread take-up lever:

During sewing, the top thread passes through the thread take-up lever. Thread take-up lever moves up and down with the needle.

13. Needle clamp screw:

The needle clamp screw holds the needle in its actual place.

14. Presser's foot:

Presser's foot holds the fabric in its definite place.

15. Bobbin cover:

During sewing, the bobbin cover protects and covers the bobbin holder.

16. Bobbin cover release button:

This type of button is used to release the cover for entrance to the bobbin.

17. Feed dog:

During sewing, the feed dog pulls the fabric forward.

18. Needle:

The needle is used to form a stitch in the garments.

19. Needle plate:

A needle plate is a metal plate that is situated under the needle and presser foot. It helps to move the fabric forward during sewing.

Practices to be done by students-

1. Label the parts of lock stitch machine in practical file.
2. Prepare the machine for threading and needling before stitching.

How to use a Sewing Machine

To get started with your first sewing project, make sure you thread the machine by following the manual that came with the sewing machine.

The instruction manual explains every single step needed to feed your sewing machine with thread. It also explains what all channels the thread should pass through. Once you thread the machine and also the bobbin is threaded and placed in the shuttle. You are ready to start sewing.

Step: 1– Pick up the fabric you want to stitch.

Step: 2– Pull presser foot lever up (which is generally opposite to presser foot (on the back).

Step: 3– Place the fabric below the presser foot where you want to start stitching from. Pull presser foot lever down so that the fabric is ready to be sewn.

Step: 4– The metal plate has the guidelines given on it for straight stitch. Make sure you hold the fabric in line with the lines given on a metal plate.

Step: 5– Once everything is ready, press the pedal and the machine will start making stitches and move the fabric backward. Adjust the stitch's speed based on how fast/slow you want to stitch.

Step: 6– When you reach the endpoint and have to take a 90-degree turn, make sure the machine is stopped with the needle down (inside the fabric).

Then pull the presser feet lever up, rotate the fabric 90-degrees and push the lever down. Start stitching straight again until you finish the end of the fabric.

Safe Work Procedure Checklist:

PRE-Operation:

- ♣ Thoroughly review & understand information provided in the owner's manual.
- ♣ Before using, always inspect for damage or disrepair, including power cord.
- ♣ Assure ventilation openings are clear of lint & scrap cloth.
- ♣ Inspect all machine setting & adjustments and modify as necessary for sewing task.
- ♣ If sewing machine fails pre-use inspection, notify your supervisor. Do not use until repaired.
- ♣ Inspect the needle to make sure it's not bent, dulled, or damaged. Never use a bent needle.

Operation:

- ♣ Only use a sewing machine for its intended purpose as described in the operator's manual.
- ♣ Use the proper type and size needle for the fabric being sewn.
- ♣ For zig-zag or any other special stitching, use a throat plate that accommodates a wide stitch.
- ♣ Always maintain a safe zone, of about one inch, where fingers never enter when in operation.
- ♣ Learn to start and run machine slowly & evenly. Operating the backstitch lever or knob takes practice.
- ♣ Never sew across pins. Carefully use straight pins & when done, place in proper storage containers.
- ♣ Never look away from the machine while it is sewing. If you need to look away, stop sewing first.

POST-Operation:

- ♣ Always turn the sewing machine off & unplug from the power source after use.
- ♣ Regularly clean the sewing machine with a lint brush after use.
- ♣ Clean up the work space when finished with your sewing task.

Maintenance of machine:

The care and maintenance of a sewing machine helps to improve its working. This consists mainly of cleaning, oiling, and right handling, which contributes to good output, quality production and safety of the workers. Care and maintenance is also necessary in order to operate the machine smoothly and for its long term use. It is very important to identify the sewing defects such as upper thread break, bobbin (lower) thread break, bunching of threads, skipped stitches, irregular stitches and stitches that are not formed properly, etc., for proper working of sewing machine and good quality production. This Unit discusses the cause and different defects and the corrective action to be taken.

Cleaning, Oiling and Handling of Sewing Machine:

A clean, well-oiled sewing machine is essential for good output and safety. The maintenance of sewing machine is also important in preventing stitching faults. When not in use, keep the machine covered with a suitable cover to prevent dust from settling on it. In some organisations, this is done by the operators but in others, it is done by a mechanic.

Cleaning of sewing machine:

While cleaning the machine, pay attention to the various parts of the machine, the machine table or stand, the work station, and even your hands, to avoid soiling the material being sewn, prevent accidents and damage to the machine. These directions mainly hold true for the lockstitch machine, but they can easily be adapted to other machine types also. The machine should always be kept covered when not in use to protect from dirt and dust. Before attempting to clean the machine, it is wise to remove the needle to avoid the danger of sewing into the finger during the cleaning process.

Material required for cleaning

1. Flat paintbrush (½" to ¾" wide)
2. Cleaning solvent or fluid
3. Soft disposable cloth
4. Screwdriver
5. Sewing machine manual
6. Small handy vacuum cleaner

All dust and dirt can be removed by wiping the part out carefully with the cloth, but if the machine is clogged, a more careful cleaning is necessary. Common tools like a small dry brush or old toothbrush or compressed air and a soft cloth are used to remove dust and lint.

Points to be considered while cleaning:

1. Before cleaning any machine, turn it off.
2. Open the slide plate and remove the bobbin case. Then remove the throat plate. Whenever it is required, remove the face plate from the left end of the head.
3. Any lint, dust, or loose threads in the area around the feed dog and rotary hook, shuttle may be brushed or blown away. Do not use anything hard, such as a screwdriver or scissors points, to remove the lint. Instead, carefully use a pointed instrument like a needle or pointed tweezers/plucker to pick out bits of thread and lint that cannot be brushed out.
4. Turn the hand wheel manually to expose any areas that might have been hidden initially. Brush again.
5. Carefully tilt the machine head back until the head rests on the post on the back of the table.
6. Brush out any lint, dust, or threads from the lower part of the machine.
7. Use a soft, thin and clean cloth to remove any lint on the machine parts.
8. Unscrew all plates and screws and the bobbin case.
9. Check the needle to be sure it is clean and the eye is not clogged.
10. Replace the needle, if necessary.

11. Wipe away any excess oil or dust on the head, machine bed, motor, table, and stand.
12. If there is lint between the tension discs and in the thread guides, use thread to floss the tension discs and remove any lint.
13. If you have oiled the machine, sew on few scraps to remove any excess oil.
14. Wash hands after cleaning and oiling the machine.
15. After completing the work, put a piece of fabric under the foot, lower the presser foot, cover the machine, and pick up any trash.
16. For cleaning the machine, it is good to clean one Notes area at a time. Remove only those parts that are detachable, and keep in mind the position and direction of each part that is removed for cleaning. Keep the parts in order to make it easier to attach them.
17. When using a screwdriver, apply pressure on the screw, if a screw does not loosen easily. Soak it in a good quality cleaning fluid available in the market for the sewing machine. Petrol or kerosene can also be used as cleaning fluids. Then set the screwdriver in the slot to loosen the screws if required.
18. Remove all the parts that is, the needle, presser foot, slide plate, throat plate, bobbin case, and the face plate. Put them in the tray and soak in cleaning fluid.
19. Wrap the motor to protect it from oil and cleaning solvent. Ensure that the sewing machine has been unplugged.
20. To clean the feed dog, remove the needle plate of the machine and brush off all lint deposits and dirt sticking to different parts.
21. To clean the shuttle case, remove all the screws holding the shuttle case. Take out the shuttle case and wipe its groove free of dirt, and thread bits.
22. Sometimes loose threads wind around the pivots of the treadle and make the sewing machine hard to run. Thread bits must be removed which are caught in the wheel along with all lint and dust sticking to the treadle parts.
23. Use a cloth or small brush to clean near the needle and feed dog.
24. If the machine starts to run hard, it is an indication that dirt or lint is jammed inside a bearing. In that case, remove the bobbin case to remove all lint and stray threads. Continuously run the machine and flush it with the cleaning fluid until the dirt and gummed oil are washed from the bearing.
25. The bobbin case can be removed from the sewing machine easily. Use a dry brush to clean out all lint. Remove any thread that may be wound up around the hook shaft. In some machines, the hook assembly can also be removed for complete cleaning.
26. Remove bobbin and bobbin case, and clean small thread particles from there.
27. Pull a piece of cloth soaked in the solvent, back and forth between the discs to clean it from dust, lint or any other particles. Repeat with a dry cloth to make sure that no lint or thread is caught between them. To remove any remaining dirt and oil, dip a cloth or brush in a cleaning fluid and scrub all parts of machine that can be reached. Check the lower tension of the bobbin case and the upper thread tension discs. Pull a thread under the bobbin to remove dirt.
28. Clean the hand wheel, washer, and the shaft. Lubricate the shaft with two drops of sewing machine oil and place a small amount of grease on all gears. Reassemble the hand wheel and clutch.

After properly cleaning these areas, reassemble all the parts of the sewing machine and run it. If reassembled correctly, it should run smoothly.

Oiling the sewing machine

Always keep your sewing machine well oiled. All dust should be removed from the exposed parts at least once every week, and the important parts of the machine should be oiled. Use good quality sewing machine oil. Always remove lint deposits, dust and thread bits before oiling any part of the machine. In order to operate the machine smoothly, it is essential to oil it repeatedly.

Material required

1. Sewing machine manual
2. Sewing machine oil
3. Soft disposable cloth

Points to remember while oiling the sewing machine:

1. Before oiling, ensure that the sewing machine is turned off.
2. Oil the machine using the directions given in the machine manual. Inspect the condition of all visible parts of the machine every time you oil it.
3. If a manual is not available, oil the machine as per the directions of the teacher/instructor as per the required frequency.
4. Locate oil holes of the sewing machine. They are mostly identified by arrows, or red or yellow paint. Put one to two drops of oil into each hole. Too much oil will clog the machine. Turn the hand wheel manually so that the oil will work its way between the parts.
5. Wipe off all dust and excess oil from the machine or table; clean up any spilled oil immediately.
6. Sew on a few fabric scraps to remove any excess oil.
7. Wash hands after oiling the machine.

Practices to be done by students-

Prepare samples of lock stitch machine and paste in practical file.

Overlock stitch machine

An **overlock** is a kind of **stitch** that sews over the edge of one or two pieces of cloth for edging, hemming, or seaming. **Overlock** sewing **machines** usually run at high speeds, from 1000 to 9000 rpm, and most are used in industry for edging, hemming and seaming a variety of fabrics and products.

An **overlock sewing machine**, or **serger** as it is commonly known, can trim, stitch, and overcast seams as they sew. They sew faster than conventional **sewing machines** at up to 1,700 stitches per minute. Because of these features, an **overlock machine** can save time and give a professional appearance to constructed items.

Overlockers are great for finishing seams and stopping fraying, they make your home sewn products last much longer, especially after a few washes, an unfinished seam will start to unravel. They also make sewing jersey at home much easier, as the overlocked seam lets the fabric stretch naturally.

Classification of Overlock stitch machine

Overlock stitches can be divided into single line, double line, three line, four line, five line and six line, etc.

1. Single-line overlock sewing machine is a single-needle and one-line stitch, which is mainly used to sew a blanket edge;
2. double-line overlock sewing machine is a single-needle double-line stitch, mainly used to sew large elastic parts such as the bottom of the elastic shirt;
3. the three-line overlock sewing machine is a single-needle three-line stitch, which is a common stitch for ordinary knitwear, especially the stitching of some garments with low grades;
4. four-line overlock sewing machine is a double-needle four-wire stitch, which adds a needle thread than the three-line overlock, and the strength is improved. It is used for stitching or stretching of clothes with higher grades, and the friction is stronger. Parts such as shoulders, sleeves, etc., especially the sewing of the outer garment;
5. five-line overlock sewing machine is a double-needle five-line stitch, its stitch fastness and production efficiency are further improved, the elasticity is better than the four-line overlock, often used for the sewing of outerwear and complementary underwear.

Types of Overlock Sewing Machine

An overlock / over edge machine is a high-speed sewing machine. This is the quickest performing machine for giving overedge stitches. Overlock Machines Are available in following Specifications

1. 2 Thread Overlock machine
2. 3 Thread Overlock Machine
3. 4 Thread Overlock Machine
4. 5 Thread Overlock Machine
5. 6 Thread Overlock Machine

Parts of overlock sewing machine



Machine Parts Name:

- 1) Thread stand: There is four thread stand which holds the bobbin.
- 2) Thread guide: Which indicates the way of the thread.
- 3) Four thread tension post: Two-needle and two looper thread tension post. This ensures the tension of the thread.
- 4) Needle thread take-up lever: To hold the needle thread.
- 5) Looper thread take-up lever: To hold the looper thread and easy to pass.
- 6) Presser foot: To press the fabric surface.
- 7) Throat plate: Help the fabric to move forward.
- 8) Feed dogs: To move the fabric to move forward by a distance.
- 9) Upper/ lower looper: To help the fabric sewing.
- 10) Upper and lower knife: To cut the fabric edge.

- 11) Stitch controller: To control the length of stitch.
- 12) Foot pedal: To control the speed.
- 13) Hand wheel: To raise and lower the needle.

Working principle:

- 1) At first, we keep the bobbin on the thread stand.
- 2) Then we passed the four thread according to their passing path.
- 3) We also maintain the thread tension.
- 4) We set up the machine properly and also ensure that thread pass through the needle.
- 5) Then we power on the machine for sewing a fabric.
- 6) At last, we over-locked some fabric.

Precaution:

- 1) We should maintain proper speed pressing the foot pedal correctly.
- 2) We should keep distance our hand and finger from the needle during work with sewing machine operation.

Practices done by students-

1. Labelling the parts of overlock stitch machine in practical file.
2. Prepare the machine for threading and needling before stitching.

Operating Procedure of overlock stitch machine:

Carefully pull the thread chain off the prong that forms **stitches** and turn the fabric to **stitch** the next side. Locate the fabric, lower the presser foot and the needle, and **stitch**. **Stitch** each corner in the same manner, or **stitch** along one side and off the fabric. Sewing with an overlock machine is a bit different from sewing with a conventional sewing machine. Some of the sewing techniques used will require practice to become proficient. Here are a few tips to help you:



Elena Guliaeva | [Dreamstime.com](https://www.dreamstime.com/)

- **When sewing with an overlock machine, be sure to fit the garment before it is stitched.** Because seams are trimmed as they are sewn, it isn't possible to let out seams if the garment is too snug.

- **Check your machine's use and care manual for instructions about how to adjust the thread tension.** To get the feel of good stitches, try using a different color thread in each looper and needle. Adjust each tension dial as needed to achieve a balanced stitch. Stitch through a variety of fabrics to determine how fabric weight affects the stitch quality.
- **When the stitch is properly adjusted, the upper looper thread will be smooth against the right side of the fabric and the lower looper will be smooth against the wrong side of the fabric.** These threads will meet and interlock evenly along the edge of the fabric. The needle thread will be seen as a long straight stitch on the right side and a shorter straight stitch, which is more widely spaced, on the wrong side (Figure 1).

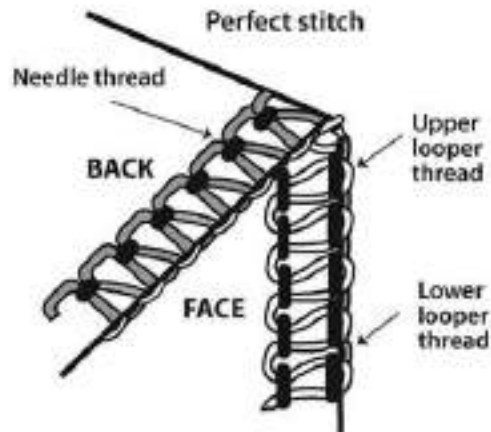


Figure 1. A properly tensioned overlock stitch.

If needle thread is too loose, increase the needle tension and/or decrease either or both looper tensions (Figure 2). If upper looper thread is too loose, tighten the upper looper tension and/or loosen the lower looper (Figure 3). If the lower looper thread is too loose, tighten the lower looper tension and/or loosen the upper looper tension (Figure 4).

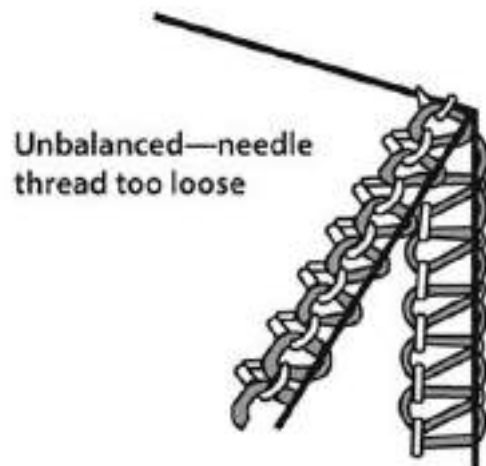


Figure 2. An unbalanced stitch where the needle thread is too loose.

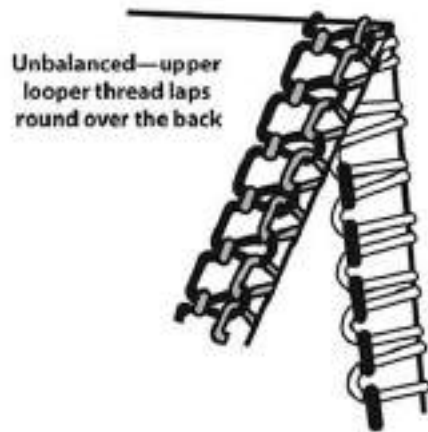


Figure 3. An unbalanced stitch where the upper looper thread is too loose.

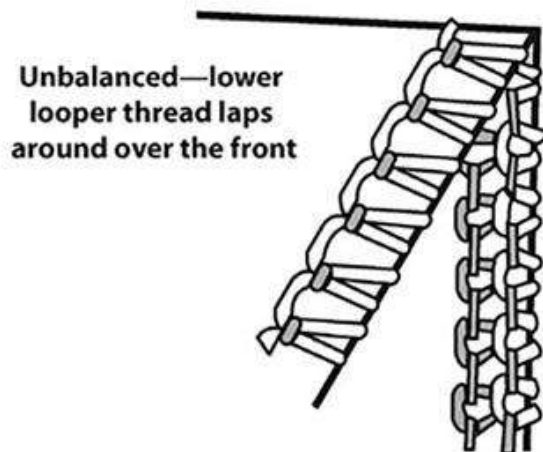


Figure 4. An unbalanced stitch where the lower looper thread is too loose.

- **The stitch width of an overlock machine is determined by two or three factors. On some machines the stitch finger or the cutting knife can be moved by turning a dial or loosening a screw. Or, change the throat plate to one that has a wider or narrower stitch finger.**

If the overlock uses two needles, the stitch width can be adjusted by removing one of the needles. This can be done only when a three-thread stitch is used.

The stitch length of an overlock machine may vary from 0 to 5 mm (0–0.2 inch). The stitch can be adjusted by turning a dial, moving a lever, or loosening a screw.

When sewing medium-weight fabric, use an average stitch length, or 3 mm (about 9 stitches per inch). Delicate fabrics or fabrics that ravel should be stitched with a shorter stitch, or 2 mm (about 12 stitches per inch). A 1-mm (0.04-inch) setting will produce a satin stitch and is used for rolled hems.

- **If your machine does not have a seam allowance guide, use masking tape to indicate the seam widths desired.** Be sure to measure from the stitching on the seamline, not from the cut edge of the seam.
- **At the beginning of a seam, it is not always necessary to raise and lower the presser foot.** At the end of the seam, continue running the machine until the thread chain is long enough to bring under the knife blade to be cut.

- **When seaming many sections of a project, stitch from one piece to the next without raising the presser foot or cutting the threads.**
- **To secure seam ends, try one of the following methods:**
- Thread the chain end into a large-eyed needle and slip the needle under the seam's stitching until the chain end is buried inside the seam (Figure 5).



Figure 5. A seam end can be secured by burying it inside the seam.

- Stitch a few stitches, then fold the loose thread chain so you stitch over it. At the end of the seam, stitch off the fabric about 1/2 inch (13 mm), raise the presser foot, and turn the fabric over. Place the fabric back under the presser foot, lower the foot, and stitch about 1 inch (25 mm) before stitching off the fabric (Figure 6).



Figure 6. A seam end can be secured by stitching over it.

- Use a seam fixative to glue the thread ends at the end of each seam. This is especially useful when seams are crossed by other stitching (Figure 7).

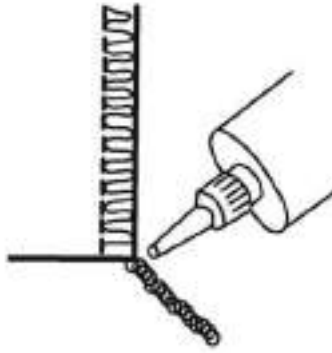


Figure 7. A seam end can be secured with seam fixative glue.

- Tie a knot in the thread chain close to the fabric edge.
- **Seams should be pressed directionally over the stitching to smooth them, then pressed in the correct position.** To avoid an impression of seam allowances on the right side of the garment, a piece of paper can be placed under the seams as they are pressed.

Because seam allowances of overlocked seams are finished together, they must be pressed to one side. Horizontal seams are usually pressed up and shoulder seams are pressed toward the back. Vertical seams are usually pressed toward the center front or back. The seam of the sleeve cap should be pressed toward the sleeve.

To avoid bulkiness, seams in hem allowances should be turned in the opposite direction.

When seams incorporate fullness, they appear less bulky when they are pressed toward the smoother side of the seam.

- **It's best to avoid stitching errors when using an overlock machine because once the seam edges are trimmed off, there's little you can do to remedy the situation.** If you do have to rip out seams, here is how to do it:
- **Two-thread overlock:** Use scissors or a ripper to cut stitch loops along fabric edge. Pull out cut threads.
- **Three- and four-thread overlock:** Use scissors or a ripper to cut stitch loops along fabric edge. Pull on needle thread to remove. Pull out all cut loop threads.
- **Chainstitch:** Clip the needle thread, then pull the looper thread.

Practices to be done by student-

Prepare samples of overlock stitch machine and paste in practical file

UNIT 4 Machines for Ornamental Stitches

Embroidery machine

Machine embroidery is an **embroidery** process whereby a **sewing machine** or **embroidery ...** Link Stitch **embroidery** is also known as **chenille embroidery**, and was ... Wilcom introduced the first computer graphics **embroidery design** system to run ... called the TMCE Series **Multi-head Electronic Chenille Embroidery Machine**.

Introduction and types of embroidery machines

1. free-motion embroidery
2. computerized embroider- Single head Embroidery Machine – Multi head Embroidery Machine – Schiffli Embroidery Machine

1. Free-motion embroidery

Free motion embroidery is also known as **free** hand sewing, **free machine embroidery** and **free machine** stitching - amongst many others! Whichever term you use, the beauty of **free motion embroidery** is that you use the sewing needle as a 'pen' and move the fabric around in any direction under the needle to draw your design.

2. Computerized embroider

Computerized embroidery, also called Computer-controlled **embroidery** or simply machine **embroidery** is a kind of Computer-aided design and manufacturing (CAD/CAM). **Computerized embroidery** machines are specialized machines that can create **embroidery** from **computerized** designs.

With respect to sewing and **embroidery** functionality we could distinguish four **kinds of machines**: Single needle **embroidery machines** (between 800 and 4000 Euros) Sewing **machines** with an **embroidery** module or combined sewing/**embroidery machines**. Multi-needle semi-professional **embroidery machines** (between 4 and 10 needles)

Process of machine embroidery

Machine embroidery is an **embroidery process** whereby a sewing **machine** or **embroidery machine** is used to create patterns on textiles. It is used commercially in product branding, corporate advertising, and uniform adornment. It is also used in the fashion industry to decorate garments and apparel.

Process of machine embroidery

1. 1. Process of Machine Embroidery By : Absolute Digitizing
2. 2. Machine embroidery is a process done by sewing machine and framing system. The framing system is used for holding and moving the textile, while sewing machine holds the needles which can create a design.
3. 3. Various types of machines are now available in the market, which have different capabilities. Some machines have single needle while some machines have multiple

needles. Such advanced machines can be used at professional level to create same design on different textiles at a time.

4. 4. Steps Of Machine Embroidery Process 1. Digitizing is the first and important step in machine embroidery. You can learn digitizing or various companies are there which provides digitizing services for embroidery to produce accurate digitization for your designs.
5. 5. Steps of Machine Embroidery Process These digitized designs can be understood by the machine software to generate the desired embroidery pattern.
6. 6. Steps of Machine Embroidery Process 2. After digitization, you can check for its accuracy or whether it needs any improvements. Vectorization can also be useful to get the accuracy and high quality image for embroidery digitizing. This technique can produce the images without hitching or compromising its pixel quality.
7. 7. Steps of Machine Embroidery Process 3. After converting the design in digitized format, the format is loaded into the machine to generate the pattern.
8. 8. Steps of Machine Embroidery Process 4. The appropriate fabric is then placed in framed in the machine using stabilization to keep it steady and to get the proper design.
9. 9. Steps of Machine Embroidery Process 5. Now, you simply need to switch-on the machine and monitor the process of embroidery. If you have a simple machine manual control over the process is required but at professional level, no such control is necessary

Types of computerized embroidery machines:

- A) Single head embroidery:
- B) Multi head embroidery
- C) Tubular embroidery
- D) Chenille embroidery
- E) Mixed chenille embroidery

Advantages for high speed motorized machines for embroidery

The technology in *high speed embroidery machine*, multiple sequins and ... speed sewing and silent *high speed* frame moving by adopting X, Y stepping *motor*

Practical

1. Threading and needling embroidery machine
2. Prepare samples from embroidery machine and paste in practical file

Zigzag stitch

A sewing **machine** that forms a **zigzag** seam with the stitches at an angle to each other. The seam is attractive and firm. A **zigzag machine** is used to stitch lace, appliqué, and needlework; to quilt hair padding; and to hem edges.

A **zigzag stitch** is variant geometry of the lockstitch. It is a back-and-forth stitch used where a straight stitch will not suffice, such as in reinforcing buttonholes, in stitching stretchable fabrics, and in temporarily joining two work pieces edge-to-edge.

When creating a zigzag stitch, the side to side motion of the sewing machine's needle is controlled by a cam. As the cam rotates, a fingerlike follower, connected to the needle bar, rides along the cam and tracks its indentations. As the follower moves in and out, the needle bar is moved from side to side.^[1] Sewing machines made before the mid-1950s mostly lack this hardware and so cannot natively produce a zigzag stitch. However there are often shank-driven attachments available which enable them to achieve a similar effect by moving the fabric from side to side instead of the needle bar.^[2]

Helen Blanchard is said to have invented and patented the first zigzag stitch sewing machine in 1873.^[3] The first dedicated zigzag machine for the consumer market was the Singer 206K, introduced in 1936



A zig-zag.

Zig zagger attachments

Older sewing machines designed to sew only a straight stitch can be adapted to sew a zigzag by means of an attachment. The attachment replaces the machine's presser foot with its own, and draws mechanical power from the machine's needle clamp (which requires the needle clamp to have a side-facing thumbscrew). It creates a zigzag by mechanically moving the fabric side to side as the machine runs.

The zigzagger's foot has longitudinal grooves on its underside, facing the material, which confer traction only sideways. This allows the zigzagger to move the material side to side while the machine's feed dogs are simultaneously moving the material forward or backward in the usual manner.

Singer zigzagers

Singer produced a variety of "Singer Automatic Zigzagger" attachments over the years, including part numbers **160985** and **161102**. These zigzagers are equipped with pop-in cams (called "Stitch Patterns") for making four different zigzag stitches, as well as a bight control for choosing the zigzag width.

YS Star" zigzagger

"YS Star" is a brand of Japanese sewing accessories that once included a zigzagger, model **YS-7**. Like the Singer zigzagger, it fits almost any low-shank sewing machine and

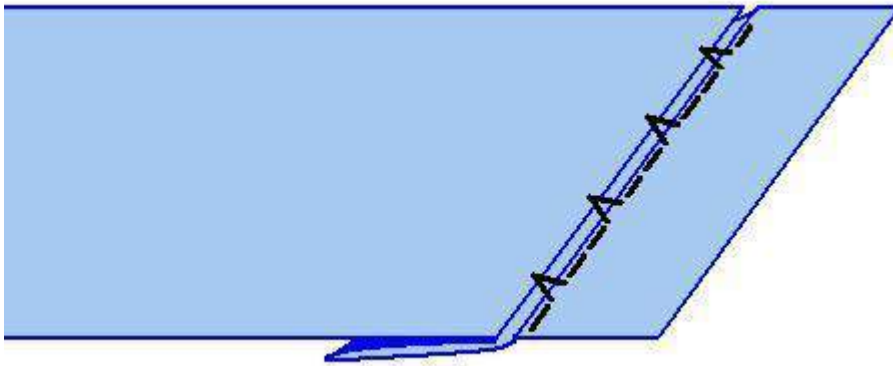
draws mechanical power via an arm connected to the machine's needle clamp. Its stitch pattern is controlled by small flat rectangular metal templates, seven of which are included.

White zig-zagger

The White Sewing Machine Company produced a zigzag attachment like the others. It was called the "**White Zigzag Attachment**", part number **1640**. Rather than using cams or templates, it is much simpler, offering just a single control for adjusting the bight (zigzag width).

Blind stitch

A **blind stitch** is a variant geometry of the zigzag stitch. It is also called a "blind hem". It is composed the same way as a zigzag, except that the individual zig-zag pairs are each separated by several straight stitches. Its purpose is to create a nearly invisible hem: because only the zigzags penetrate to the visible side of the material, minimizing their number minimizes their visibility.



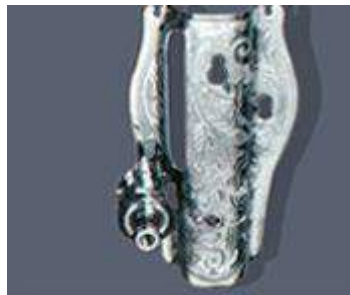
Different parts of zigzag sewing machine



Button Pressing Machine



Arm Side Cover



Face Plate



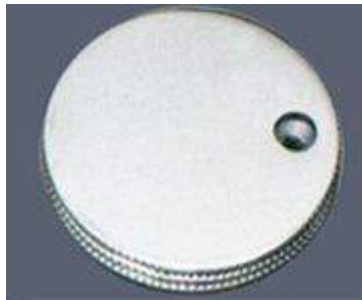
Bobbin Winder Complete With Thumb Screw



Balance Wheel



Sewing Machine Hand Attachment



Clamp Stop Motion Clamp Screw



Throat Plate



Slide Plate



Open Shuttle Race Complete



Shuttle Race Complete



Clump Stop Motion Flanged Bushing



Arm Shaft Bushing



Thread Take Up Cam



Feed Cam



Connecting Rod



Pressure Bar



Oscillating Shaft



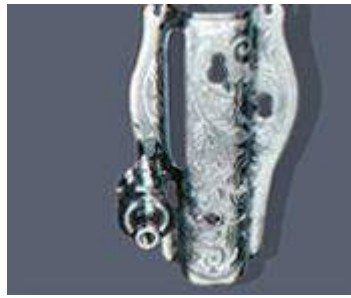
Needle Bar



Feed Forked Connection



Feed Regulator With Lever And Nut



Feed Rock Shaft With Crank

3. Operating steps of zigzag sewing

The needle takes three stitches to one side and then three stitches to the other side, keeping the fabric flat and tunnel-free. Use the three-step zigzag for finishing raw edges, sewing on elastic, mending tears, and making decorative effects.

UNIT 5 Machines for Attachments

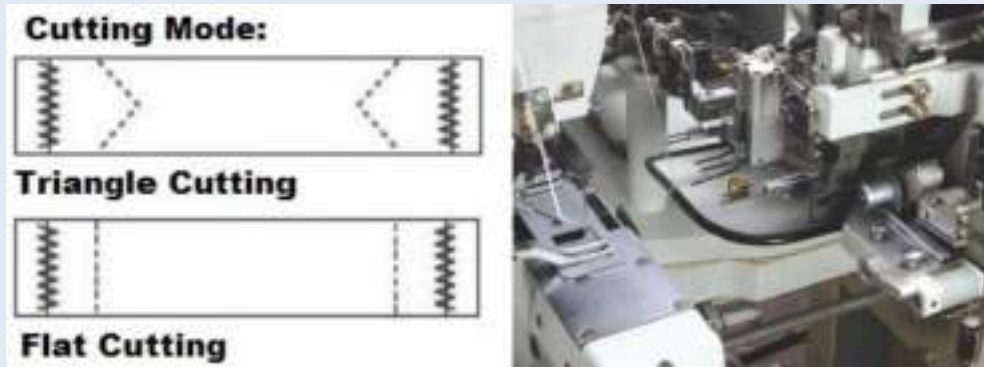
Belt – loop setter, parts and operating procedure of button

Automatic Belt Loop Setter

FOXSEW Fully Automatic 2-Needle Belt Loop Setter, Double Needle Automatic Beltloop Setter Sewing Machine Unit, Automatic Double Needle Belt Loop Attaching Sewing Machine Workstation

Machine's Features:

- (1) Independent research and development of needle machine can be used to automatically set tab jeans and casual pants ear of a shape, easy to learn equipment operation, saving time and effort. Automatic screening, cutting, folding and tacking processes once completed, and has a simple mechanical construction, easy operation and flexible adjustment, production efficiency.
- (2) The unique design of automatic detection device can filter out waste pants loop joints, and implements automatic filter removal.
- (3) Touch-screen operating system application to facilitate the management pattern editing and data, operating functions at a glance.



This machine streamlines procedure of four workers as cutting belt, bar-tacking, carrying and other four workers of enforcement sewing on normal sewing machine. FOXSEW FX430D-DBL saves not only the salary of workers, in average 1000\$, but also improve the working efficiency by 70%.

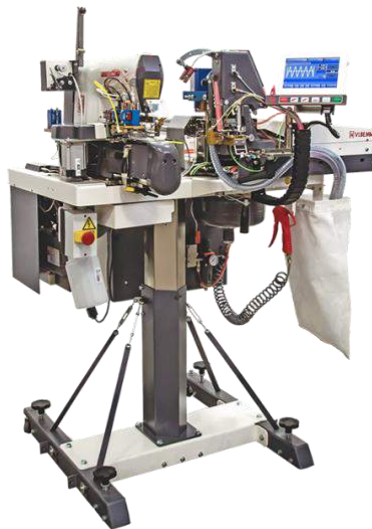


Specifications:

Model NO.:	FX430D-DBL
Max. Sewing Speed:	2700 r.p.m
Needle Type:	DPx17 19#-21#
Sewing Width:	1.0-3.5 mm
Sewing Length:	5.0-22 mm
Presser Foot Lift:	21 mm
Weight:	255 KGS
Belt Loop Width:	7-20 mm
Bartacking Sewing Belt Length:	45-75 mm



Automatic belt loop setter



Unit 4650EV9@UP2 is the new Vi.Be.Mac. belt loop setter, and it's the result of our 37 year experience (the first version of the machine dates back to 1980). In this latest model significant improvements have been introduced from every point of view: the unit is much more silent than the previous one, much faster in the change of loop length, it is equipped with new cutting device granting much better performances; hardware and software are entirely designed and produced by Vi.Be.Mac.

Sportswear loop with device supplied, double loop and classic loop with optional devices.

Electronic features:

- 7" Colored Super fast touch screen panel
- CPU assures a much better software management, a better seam quality, easier adjustments and patterns, more precision, more customizable and more fashion options;
- Updates through USB or Internet (remote control)
- Preview of new patterns visible on the screen
- Error History Reporting
- Possibility to work without the touch Screen Panel in case of breakdown
- Auto-diagnostic system to avoid errors
- Control KEY to allow the machine manager ONLY to change the unit parameters (operator will not be able to sabot/change anything)
- Software available in 7 different languages: Italian, English, Spanish, Portuguese, Turkish, Russian, Arabian

Mechanical improvements:

- New stand
- Scraps and dust cleaning system
- Fast adjustment of opening / closing loop guides without use of any tools
- 400W motors for the X & Y movements;
- Double compensatory presser foot with extra pressure and less flexure, besides lower barycenter
- Counter-weight device to counterbalance the presser foot thrust and keep it always the right position - Less usury of X&Y carriage
- Loop aligner system to avoid the loop mispositioning on the fabric, especially for the folded tails (Q loop / 3D loop)
- Quick revolving type replacement of all devices with 4 preset positions: sewing head, loop pulling device, cutting system, loops loader
- Electric bobbin winder
- Long lasting cutting device, it always cuts the loop with centered extremity.

Technical specifications:

- **Sewing Head:** Vi.Be.Mac.
- **Max Speed:** 2.800 rpm
- **Recommended Sewing Speed:** 2.599 rpm
- **No. of stitches:** 1 to 999 (programmable)
- **Needle gauge:** 20 to 80 mm
- **Loop width:** 8 to 25 mm (optional 30 mm)
- **Finished Loop:** 32 to 85 mm
- **Sewing area:** 15 x 28 mm
- **Power Supply Voltage:** 220 V 50/60 Hz
- **Sewing Machine Motor:** Mitsubishi XCG 554 20Y - 550W
- **Control Box:** XCG MFY 2005

- **Operating air pressure:** 4,5 Bar
- **Air consumption:** 6 L/min


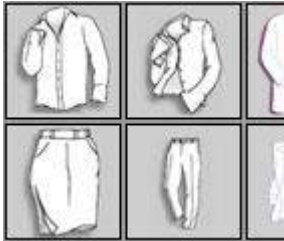
Operating procedure of button sewing machine

Button Sewing Machines

We are the foremost importer, distributor and supplier of premium quality of Buttonhole Sewing Machine. Button Sewing Machine is ideal for stitching Shirts, T-shirts, Uniforms etc.. Our offered machine is sourced from reliable international vendors and is manufactured with the aid of fine quality raw material and latest technology. Further the offered Buttonhole Sewing Machine is tested on various stages by experienced engineers as per the set industrial norms. Button Sewing Machine is highly applicable in number of different garment applications.

Button Sewing Machine includes:

Button Stitch Sewing Machine
 Buttonhole Sewing Machine
 Eyelet Button hole Machine

Model : MB-372	Button Stitch Sewing Machine	
	<p>We are Importer, Supplier & Distributor of Button Stitch Sewing Machine.</p> <p>This series of Button Stitch Sewing Machine is applicable for button with two or four holes. Shank buttons and others can also be sewn by equipping with accessories. The number of stitches can be quickly selected from among 8, 16 and 32 stitches corresponding to the change in sewing specification. Short, cut thread ends. It is suitable for light and heavy weight material for men, women and children's clothes there by enabling the sewing machine to perfect finish buttons with accuracy. Suitable for Shirts, Trousers, Jackets, T-shirts etc.</p>	

Model Name	Max. Sewing Speed	Number of Stitches	Applicable Button	Needle bar stroke	Needle Size	Button clamp lifting height / system
SR-372	1,500 spm	8, 16 and 32 stitches	Round Shaped flat bottom (2 holed, 4 holed Shank/Snap/Metal Button)	48.6 mm	TQ x 7 #18 ~#20 TQ x 1 #14~#18	>9mm/Automatic System

Introduction and importance of button sewing machine

It is a simple automatic m/c. **Button** positioning can be automatic. **Sewing** is according to the hole in **button** & may be cross or parallel. **Stitch** type: lock **stitch** or chain **stitch** may be used.

Button hole sewing machine is used to make hole of **button** of an apparel. Various types of **button** hole are formed by the **button hole machine**. Apparel may contain one or more **button** hole. ... So, it is **important** to use correct **button hole sewing machine** for making the **button** hole.

Button hole sewing machine is used to make hole of **button** of an apparel. ... The entire **button** has not the same shape. So, it is **important** to use correct **button hole sewing machine** for making the **button** hole. Features of **Button Hole Sewing Machine**: The features of **button hole sewing machine** are given below.

Importance of button sewing machine

BUTTONS Buttons can be fascinating, functional, and fashionable. They are fascinating because of their many sizes, shapes, colors, and designs. They are functional because they are one of the major methods of opening and closing garments. Buttons are fashionable because they also decorate and enhance apparel & other items. **History** The term is from the French word, bouton, meaning a round object. Since the 13th century, buttons have been used as fasteners. Before that, they were used more for their decorative and symbolic value. Today, buttons continue to be used as decoration, but their placement once served a useful purpose. For instance buttons on the back of men's coats served as a way to fasten coat tails up out of the way when riding on horseback. During Frederick the Great's reign, it was customary for three buttons to be used on the sleeve of a coat; some say this was to keep sentries from rubbing their cuff across their nose. King Edward VII started the custom of unbuttoning the last vest button after a large meal. Traditionally, men's garments button left over right. However, at one time, both men's and women's wear had buttons on the left. During the Middle Ages, men's buttons were changed to the right to enable one to open the coat with the left hand and draw their sword from across the left hip with the right hand.

Parts of Button Stitching Machine:

- Pulley
- Button clamp
- Operation panel
- SD card slot
- Control box
- Work clamp
- Power switch
- Eye guard
- Side cover
- Cone stand
- Thread take up cover
- Finger guard

Threading and operating steps of button sewing machine

How to Thread a Sewing Machine

Threading your sewing machine is a process in which you load an upper thread and a lower thread into your machine. The machine will weave these two threads together in order to create stitches in your material. Every sewing machine is slightly different when it comes to threading, but there are a few general steps that most machines employ. Check your instruction manual when threading your sewing machine for the first time.

1. **Wind a bobbin.**

The bobbin is the lower spool of thread for your machine. If you don't already have bobbins wound with thread (either from a previous project or store-bought pre-wound bobbins), you'll need to wind your own from an existing spool of thread. To do this, place a spool of sewing thread on your machine's thread pin (at the top of your machine). Pull the thread to the left of your machine and wind it counter-clockwise around the pre-tension disc (attached to the thread guide). Then, thread the thread through the two small holes in your empty bobbin, and wind the thread several times around the center pillar of the bobbin. Place the bobbin on your machine's bobbin winder pin (usually on the top right side, near the thread pin). Now, simply press your machine's foot pedal, and the bobbin should begin winding. Wind it until it's full, then trim the thread to detach it from your larger spool.

2. **Load your wound bobbin.**

Once you have a wound bobbin, it will go in a little compartment underneath your needle (called the bobbin case) to supply the lower thread as your machine sews. To load your bobbin, lift your needle and presser foot to the highest position (your machine will either use a hand wheel or a button for this) and

remove the bobbin cover. Place your bobbin in the round slot; your machine will have an arrow showing which way the bobbin should be placed to unspool correctly. Then, pull the end of the bobbin thread through your machine's tension spring and replace the bobbin cover.

3. Place the spool.

To set up the upper thread for your machine, first place a spool of thread on your machine's thread pin (also called a spool pin or spool holder).

4. Thread through the thread guide.

Pull the thread to the left of your machine and thread it through the thread guide.

5. Pull the thread through the U-shaped guide.

Pull the thread down from the thread guide, into a deep groove on the front of the machine, and then bring the thread back up into the second deep groove just to the left.

6. Wrap the thread around the thread take-up lever.

At the top of the machine's second groove is a metal hook called the take-up lever. Wrap the thread around the take-up lever.

7. Thread the needle.

Pull your thread down toward the sewing machine needle, and thread the eye of the needle from front to back. Keep pulling the end of the thread until there are several inches of thread through the needle. (Some machines will have an automatic needle threader instead—see your sewing machine manual for more instructions.)

8. Catch the thread.

Once both your top thread and bobbin have been set up, you need to connect the two threads to be ready to sew. Using your needle position knob or button, lower the needle all the way down and back up again—when you do this, the needle will catch the bobbin thread and pull it back out in a loop. Pass a flat object like a ruler underneath the needle to grab both thread strands and position them away from where you'll be stitching.

Button Sewing Machines

We are the foremost importer, distributor and supplier of premium quality of Buttonhole Sewing Machine. Button Sewing Machine is ideal for stitching Shirts, T-shirts, Uniforms etc.. Our offered machine is sourced from reliable international vendors and is manufactured with the aid of fine quality raw material and latest technology. Further the offered Buttonhole Sewing Machine is tested on various stages by experienced engineers


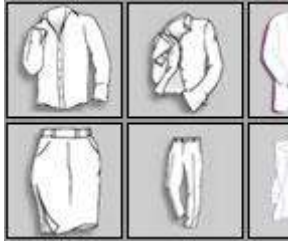
as per the set industrial norms. Button Sewing Machine is highly applicable in number of different garment applications.

Button Sewing Machine includes:

Button Stitch Sewing Machine

Button hole Sewing Machine

Eyelet Button hole Machine

Model : MB-372		Button Stitch Sewing Machine				
		<p>We are Importer, Supplier & Distributor of Button Stitch Sewing Machine.</p> <p>This series of Button Stitch Sewing Machine is applicable for button with two or four holes. Shanked button and other are also can be sewn by equipping with accessories. The number of stitches can be quickly selected from among 8, 16 and 32 stitches corresponding to the change in sewing specification. Short, cut thread ends. It s suitable for light and heavy weight material for men, women and children's clothes there by enabling the sewing machine to perfect finish buttons with accuracy. Suitable for Shirts, Trousers, Jackets, T-shirts etc.</p>				
ModelName	Max.Sewing Speed	Number of Stitches	ApplicableButton	Needlebar stroke	NeedleSize	Buttonclamp lifting height / system
SR-372	1,500 spm	8,16 and 32stitches	Round Shapedflat bottom (2 holed, 4 holed Shank/Snap/ Metal Button	48.6 mm	TQ x 7 #18 ~#20TQ x 1 # 14~#18	>9mm/AutomaticSystem

Parts and operating procedure of buttonhole sewing machine

Buttonholes are reinforced holes in fabric that [buttons](#) pass through, allowing one piece of fabric to be secured to another. The raw edges of a buttonhole are usually finished with stitching. This may be done either by hand or by a [sewing machine](#). Some forms of button, such as a [frog](#), use a loop of [cloth](#) or [rope](#) instead of a buttonhole.^[1] Buttonholes can also refer to flowers worn in the lapel buttonhole of a coat or jacket, which are referred to simply as "buttonholes" or [boutonnieres](#).^[2]

There are many types of sewing machine. Some are used for special purposes such as Button Attaching machine, **Bartack sewing machine** etc. This type of machines works in a cycle and so these are called simple automatic machine. Here we study on a type of machine that is Button hole machine. For example if you are sewing a shirt and need to make a few button holes then a **buttonhole** attachment (or built in button hole mode of a general purpose machine) would work fine, but for production work in a clothing factory a special purpose industrial buttonhole machine would be much faster and more reliable.



Fig: Buttonhole machine

Objectives:

1. To know about the parts of button hole machine.
2. To know about the thread path of buttonhole machine.
3. To draw the thread path diagram of button holing machine.
4. To know the working principle of button holing machine.
5. To know the types of needle, its no, size, SPM, group, TPI of the machine.
6. To know about the buttonhole sewing machine.

Specification of buttonhole machine:

- Brand : JUKI
- Model : LBH/781
- Group : Lock stitch
- Needle use : DPX5
- Needle size : 9, 11, 14, 16, 18, 20 and 21
- SPM : 3000-3600
- TPH : 6-7 inch

- Pressure : 123

Different parts of button hole machine:

1. Bobbin winding
2. Bobbin winding spring tensioner
3. Back stitch lever
4. Driver wheel
5. Driven wheel
6. Spring tensioner post box
7. Thread guide
8. Knife lever
9. Thread take-up lever
10. Needle
11. Knife
12. Wiper
13. Pressure feed guide
14. Throat plate
15. Bobbin
16. Bobbin case

Main adjustment points of buttonhole machine:

1. Thread.
2. Tensioner.
3. Needle.
4. Pressure feed.
5. Stitch density.
6. Looper.

Working principle of button hole machine:

This machine works in cyclic system i.e. during pressing switch after sewing one complete button hole the machine will stop. In fully automatic button hole machine more than one i.e. pre-selected no. of button holes can be sewn in pre-selected distance. In this system no mark is needed on cloth for button hole. In buttonhole machine there is system to make big or small button hole and also to increase or decrease the stitch density. Usually lock stitch or chain stitch is used here. Button hole can be made before or after sewing. Both system has some advantage and disadvantage. If hole is made before then the cut edge is closed in sewing and the button hole is seen very good and clean. But the disadvantage is that after starting sewing there is no chance to change the button hole place and cut edge disturbs to sew well due to flagging. But disadvantage is thread of cloth is come out along the sewing line of button hole that looks very bad. Usually for dense woven and coarse cloth before sewing, for thin cloth after sewing button hole is made.

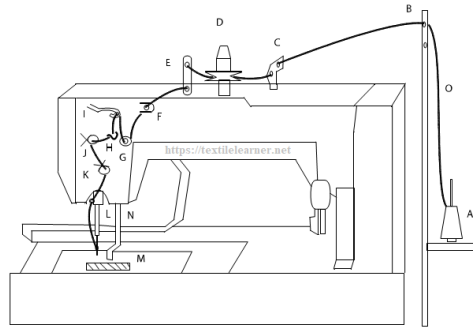


Fig: Diagram and thread path of Button Hole machine

Where,

A = Cone package

B = Guide

C = Guide

D = Spring box tensioner

E = Guide

F = Guide

G = Tensioner

H = Thread cutting ever

I = Take up lever

J = Trimming lever

K = Guide

L = Guide

M = Throat plate

N = Cutting knife

Uses of buttonhole machine:

1. To make button hole in different apparels.
2. Sewing of button hole.

Introduction and importance of buttonhole sewing machine

Buttonhole sewing machine cannot be used for normal purpose. But for making a complete garment it's **importance** cannot be denied. It is used for making **button hole** in different garments. These **machines** make button holes at high speed and with greater precision than with a **button hole** attachment on a **sewing machine**.

A buttonholer is an attachment for a sewing **machine** which automates the side-to-side and forwards-and-backwards motions involved in sewing a **buttonhole**.

Different parts of button hole machine:

1. Bobbin winding
2. Bobbin winding spring tensioner

3. Back stitch lever
4. Driver wheel
5. Driven wheel
6. Spring tensioner post box
7. Thread guide
8. Knife lever
9. Thread take-up lever
10. Needle
11. Knife
12. Wiper
13. Pressure feed guide
14. Throat plate
15. Bobbin
16. Bobbin case

Step 1 Mark the button hole position.

Some general guidelines in marking buttonholes

Ensure the distance between the buttons are the same. It is usually set at 2-3 .5 inches. But you can decide on the distance in a more customised manner by doing the calculations given below

How to space the buttonholes on your shirt

Measure the whole area of the opening where you mean to place the buttonholes. Divide this by the buttonholes you require. You will get a figure ; This is your **X**. Mark your first buttonhole. Then mark the next buttonhole, x inches from the first. Continue marking like this

Always place one button at the fullest part of the bust. otherwise the opening will gape.

[Each buttonhole should be of uniform distance from the edge of the garment opening.](#)

[Step 2 Change the dial of the sewing machine to buttonhole \(Consult your sewing machine manual if you do not know which\)](#)

[Step 3 Insert the button on the buttonhole foot.](#)



Step 4 Attach the buttonhole foot on your machine.



Step 5 Take the top needle thread to the back.(out of way or it will get caught in the stitching)

Step 6 Keep the pressure foot down on the space where you marked the bottom bartack of the buttonhole (this order will depend on the order in which the particular sewing machine model you have will sew the buttonhole; consult your sewing machine manual for more details)

Push back the buttonhole lever (This has to be done everytime you make a buttonhole)

Now start stitching . Your machine will automatically make the perfect buttonhole as per the button you have placed on it.Cut open the inner space with a seam ripper or buttonhole cutter. Apply fray sealant or fabric glue to the cut edges.

If you think the buttonhole needs somemore thickness, immediately after the buttonhole is made, push the buttonhole lever again and start again. The machine will automatically make stitches over the earlier buttonhole in the same sequence.

You can also add cord to the buttonhole to make it strong and stable. Your sewing machine manual will have complete instructions on how to make this. Mine does.

UNIT -6 Personal Hygiene & Cleaning and Maintenance at Workplace

Importance of health and hygiene

Being **healthy** should be part of your overall lifestyle. Living a **healthy** lifestyle can help prevent chronic diseases and long-term illnesses. Feeling good about yourself and taking care of your **health** are **important** for your self-esteem and self-image. Maintain a **healthy** lifestyle by doing what is right for your body.

Importance of Health

Health is a state of complete physical, mental and social well being. For a healthy life cycle, a person needs to have a balanced diet and has to regularly exercise. One must also live in a proper shelter, take enough sleep and have good hygiene habits. So, how do we ensure that we are doing all the right things to have a good health? Let's spread the awareness for the importance of health:

- The health of all organisms depends on their surrounding or their environment. Our social environment is an important factor in our individual health.
- Public cleanliness is important for individual health. Therefore, we must ensure that we collect and clear the garbage regularly. We must also contact an [agency](#) who can take the responsibility of clearing the drains. Without this, you could severely affect your health.
- We need food for health and for food, we will have to earn money by doing work. For this, the opportunity to do work has to be available. Good economic condition and jobs are, therefore, needed for individual health
- We need to be happy in order to be truly healthy. If we mistreat each other and are afraid of each other, we cannot be healthy or happy. Social equality and harmony are important for individual health.

According to the World Health Organization (WHO) good health is not merely the absence of disease; it is also a reflection of the social and mental well-being of people in a community. Thus, to achieve the WHO goal of providing health for all, improvements in a community should aim not simply to reduce disease, but also to reduce social tensions and mental ill-health to acceptable levels.

Hygiene is a series of practices performed to preserve [health](#). According to the [World Health Organization](#) (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of [diseases](#)."^[2] **Personal hygiene** refers to maintaining the body's cleanliness.

Many people equate hygiene with 'cleanliness,' but hygiene is a broad term. It includes such personal habit choices as how frequently to take a shower or bath, [wash hands](#), trim [fingernails](#), and wash clothes. It also includes attention to keeping surfaces in the home and workplace, including [bathroom](#) facilities, clean and [pathogen](#)-free.

Hygiene is a concept related to [cleanliness](#), [health](#) and [medicine](#). It is as well related to personal and professional care practices. In medicine and everyday life settings, hygiene practices are employed as preventive measures to reduce the incidence and spreading of [disease](#). Hygiene is also the name of a branch of science that deals with the promotion and preservation of health.

Hygiene practices vary, and what is considered acceptable in one [culture](#) might not be acceptable in another.

In the manufacturing of food, pharmaceutical, cosmetic and other products, good hygiene is a critical component of [quality assurance](#).

The terms cleanliness and hygiene are often used interchangeably, which can cause confusion. In general, hygiene refers to practices that prevent spread of disease-causing organisms. Cleaning processes (e.g., [handwashing](#)) remove infectious microbes as well as dirt and soil, and are thus often the means to achieve hygiene.

Other uses of the term appear in terms such as body hygiene, [personal hygiene](#), [sleep hygiene](#), [mental hygiene](#), [dental hygiene](#), and [occupational hygiene](#), used in connection with [public health](#).

Good personal **hygiene** is **important** for both **health** and social reasons. It entails keeping your hands, head and body clean so as to stop the spread of germs and illness. Your personal **hygiene** benefits your own **health** and impacts the lives of those around you, too.

Good personal **hygiene** is one of the best ways to protect yourself from getting illnesses such as gastroenteritis and the common cold. Washing your hands with soap removes germs that can make you ill. Maintaining good personal **hygiene** will also help prevent you from spreading diseases to other people.

Factors for good health

Factors that influence health Many factors influence health and some may have both good and bad influences. For example, surface water bodies can be beneficial as they can supply water for domestic and agricultural work, may be used for fishing and recreation, and can create a pleasant environment. However, they can also be breeding areas for insects and snails that transmit diseases such as malaria, dengue fever and schistosomiasis. Pollution of water bodies by humans also increases the risks to health. Factors that influence health can be grouped as follows:

- The environment.
- The awareness of individuals and communities about health.
- Personal hygiene.
- Health care.
- Disease.

Studies indicate that the following five **factors** make the biggest difference in overall **health** and wellness: 1) diet; 2) rest; 3) exercise; 4) posture; and 5) avoiding the use of alcohol, drugs and tobacco. When self-evaluating where you are with these five factors, choose your weakest area and start with making goals for improvement. Learn how partnering with Balanced Well-Being Healthcare can help you improve your overall wellness.

Make Diet Goals for Maintaining Good Health

“A history of poor eating and physical activity patterns have a cumulative effect and have contributed to significant nutrition- and physical activity-related health challenges that now face the U.S. population. About half of all American adults—117 million individuals—have one or more preventable chronic diseases, many of which are related to poor quality eating patterns and physical inactivity. These include cardiovascular disease, high blood pressure, type 2 diabetes, some cancers, and poor bone health,” reports the [Office of Disease Prevention and Health Promotion](#).

Nutrition is paramount in the Balanced Well-Being functional approach to maintaining good health. Our nutritionist is involved in all new patient packages to help align diet with individualized treatment plans. In addition to her collaboration in the [Functional Medicine Package](#), our nutritionist offers individually designed treatment plans for diet, nutritional supplements and lifestyle changes based on testing results.

Rest for Enhanced Wellness

In today’s day and age, rest often takes the backseat to other priorities when we are short on time, but those z’s you are sacrificing now, may cause you long-term problems in the future.

“Insufficient sleep has also been linked to these (obesity, diabetes, cardiovascular disease) and other health problems, and is considered an important risk factor. Although scientists have just begun to identify the connections between insufficient sleep and disease, most experts have concluded that getting enough high-quality sleep may be as important to health and well-being as nutrition and exercise,” says [Harvard Health](#).

Some individuals attempt to obtain sufficient sleep but are prevented by an actual sleep disorder. There are two main types of sleep disorders: obstructive sleep apnea and central [sleep apnea](#).

The most common type of sleep disorder is the obstructive variety. In obstructive sleep apnea the upper airway leading to the lungs becomes obstructed at various potential spots. This obstruction may be caused by excess tissue in the airway as in obesity, enlarged tonsils, a very large tongue, nasal obstruction, and relaxation of the airway musculature collapsing when asleep.

If you are suspicious that you may have a sleep disorder, consult with the experts in our office to help ascertain if you do and receive recommended treatment.

Establish Exercise Habits

Foundational for Maintaining Good Health

7 reasons why exercise is vital for maintaining good health:

1. Controls weight
2. Combats health conditions and diseases
3. Improves mood
4. Boosts energy
5. Promotes better sleep

6. Supports a healthy sex life
7. It's fun, social and reduces stress

Before beginning an exercise regimen, it's always important to consult your doctor to make sure you are ready for certain levels/types of exercise.

How much exercise is recommended? The [Department of Health and Human Services](#) recommends at least 150 minutes a week of moderate aerobic activity or 75 minutes a week of vigorous aerobic activity a week, or a combination of the two.

Don't forget to incorporate strength training for all the major muscle groups at least twice a week using free weights, weight machines or body-weight exercises.

Space out your activities throughout the week.

Practice Good Posture

When thinking about ways for maintaining good health, posture probably isn't one that people think of very often. However, we should! "Having poor posture can put more stress on certain muscles and joints, forcing them to be overworked and causing them to fatigue," says the [U.S. News and World Report](#). Their research shows that poor posture can cause problems with fatigue, circulation, arthritis, mood, musculoskeletal dysfunction, jaw pain, breathing efficacy, headaches, sexual function, and shoulder and back pain.

Limit Alcohol and Tobacco Use

When it comes to alcohol use, what is considered ok? According to the Dietary Guidelines for Americans reported by the reports the [Centers of Disease Control and Development](#), moderate drinking is defined as up to 1 drink per day for women and up to 2 drinks per day for men.

The Dietary Guidelines recommend that the following individuals should NOT drink for any reason:

- Individuals younger than age 21.
- If you are pregnant or may be pregnant.
- If you are driving, planning to drive, or participating in other activities requiring skill, coordination, and alertness.
- If you are taking certain prescription or over-the-counter medications that can interact with alcohol.
- If you are suffering from certain medical conditions.
- If you are recovering from alcoholism or are unable to control the amount they drink.

The [CDC](#) also strongly advises against smoking and tobacco use. "Smoking leads to disease and disability and harms nearly every organ of the body. More than 16 million Americans are living with a disease caused by smoking."

Serious smoking-related illness includes: cancer, heart disease, stroke, lung diseases, diabetes, and chronic obstructive pulmonary disease (COPD), which includes emphysema and chronic bronchitis. Smoking also increases risk for tuberculosis, certain eye diseases, and problems of the immune system, including rheumatoid arthritis.

“Secondhand smoke exposure contributes to approximately 41,000 deaths among nonsmoking adults and 400 deaths in infants each year. Secondhand smoke causes stroke, lung cancer, and coronary heart disease in adults. Children who are exposed to secondhand smoke are at increased risk for sudden infant death syndrome, acute respiratory infections, middle ear disease, more severe asthma, respiratory symptoms, and slowed lung growth.”

Introduction and importance to health and hygiene

INTRODUCTION.

Health education plays an **important role** in the community **hygiene**. To prevent illness and have positive **health** attitude, correct and complete knowledge of **health** is necessary. **Health** is **cleanliness** and **cleanliness** is one of the main defenses against diseases, whether contagious or self-generated

Good personal **hygiene** is **important** for both **health** and social reasons. It entails keeping your hands, head and body clean so as to stop the spread of germs and illness. Your personal **hygiene** benefits your own **health** and impacts the lives of those around you, too.

Personal **hygiene** is how you take care of your body. Maintaining **hygiene** practices reduces the spread of illness and risk of medical conditions caused by not taking care of yourself. It also increases self-confidence and positively impacts personal relationships.

Factors affect the maintenance of good health:

. **Physical well-being** consists of the ability to perform **physical** activities and carry out social roles that are not hindered by **physical** limitations and experiences of bodily pain, and biological health indicators.

A state of physical well-being is not just the absence of disease. It includes lifestyle behavior choices to ensure health, avoid preventable diseases and conditions, and to live in a balanced state of body, mind, and spirit.

Mental and emotional well being

Mental health refers to our **psychological** or **emotional health** and **wellbeing**. It is about how we think, how we feel, how we behave, how life affects us and how we cope with it, how we engage with others, and the choices we make.

Emotional well-being plays a significant role in maintaining positive mental health. It controls the health-seeking behavior, improves decision-making skill, increases interpersonal communication, and helps recover from stressful situations or illness. Thus, they play a significant role in overall well-being of an individual. However, this psychological aspect called emotion is usually neglected.

The diseases such as anxiety, depression, posttraumatic stress, panic attack, obsessive compulsive disorder, and suicides emerged and led to an increase in the chronic cases. Thus, sudden change in the lifestyle of people due to economic constraints and social problems led to serious psychological issues. Health workers also work under immense stress during a pandemic. Thus, regular screening, counseling, and support from mental health workers can play an important role in their psychological well-being.

Mental health awareness can play a significant role in improving emotional well-being of the people. It involves prevention, identification, treatment, and overall management of mental illness without any kind of judgment or shame. However, health-care system has become less accessible to public during social isolation. With transport services going into shutdown, traveling to tertiary facilities has become impossible to many. Prioritization by the government in concentrating all the health resources and workforce toward controlling Covid-19 has adversely affected the physical and mental health issues.^[2] Thus, in times, of this grave pandemic, digital mental health can improve service delivery. From providing emergency mental health services and treatment to performing suicide risk assessment and counseling its domains are multiple. With its various modes of functioning, telepsychiatry consultants can directly reach the clients at home and provide support.

Social being

We humans are **social beings**; we share mirror neurons that allow us to match each other's emotions unconsciously and immediately. We leak emotions to each other. We anticipate and mirror each other's movements when we're in sympathy or agreement with one another—when we're on the same side.

3. Characteristics of a well adjusted person:

- Maturity in thinking.
- Emotional balance.
- Warm and understanding towards others.
- Free from tension due to routine events.
- Independent in decision making.

What are the characteristics of well adjusted person?

Some characteristics of a well-adjusted person include high **self-esteem**, contentment, a realistic view of the world, emotional **stability** and independence. Other characteristics include an ability to conduct **self-appraisals**, **responsibility** and social **stability**.

Common danger signals of mal-adjustment

Maladjustment is a term used in [psychology](#) to refer the "inability to react successfully and satisfactorily to the demand of one's environment". The term maladjustment can be refer to a wide range of social, biological and psychological conditions.

Maladjustment can be both intrinsic and extrinsic. Intrinsic maladjustment is the disparities between the needs, motivations and evaluations of an individual, with the actual reward gain through experiences. Extrinsic maladjustment on the other hand, is referred to when an individual's behavior does not meet the cultural or social expectation of society.

The causes of maladjustment can be attributed to a wide variety of factors, including: family environment, personal factors, and school-related factors. Maladjustment affects an individual's development and the ability to maintain a positive interpersonal relationship with others. Often maladjustment emerges during early stages of childhood, when a child is in the process of learning methods to solve problem that occurs in interpersonal relationship in their social network. A lack of intervention for individuals who are maladjusted can cause negative effects later on in life

Vomiting spells, nervous spasms or tics, weeping or daydreaming, fears, self-pity, imaginary playmates, temper tantrums, and thumb sucking.

Associated characteristics

There are some characteristics that are associated with **maladjustments**. Nervous behavior. Habits and tics in response to nervousness (e.g. biting fingernails, fidgeting, banging of head, playing with hair, inability to stay still). Emotional overreaction and deviation.

Importance of cleanliness and maintenance at workplace

Maintaining **cleanliness** in the **workplace** not only creates a healthier environment for employees but also tends to help companies become more efficient and productive. Cluttered desks, leftover food and waste paper are just some of the most common items that contribute towards a messy workspace.

Maintaining cleanliness in the workplace not only creates a healthier environment for employees but also tends to help companies become more efficient and productive. Cluttered desks, leftover food and waste paper are just some of the most common items that contribute towards a messy workspace. It is suggested that a clean workplace increases the professionalism and motivation of the employees as well as promoting a healthy working environment

The following benefits will explain why cleanliness is important for workplaces:

- **Productivity:** Provisions for a clean environment can increase the productivity of employees. Cleanliness can help drive motivation and boost the morale of employees thereby creating a feeling of belonging within their organisation (360 Services, 2014²). One of the easiest ways to encourage this is by placing free standing or [wall mounted waste bins](#) around the workplace to make it easy to dispose of waste.
- **Well-being:** Providing a clean work environment helps in maintaining the well-being of employees. In a workplace where litter and waste is disposed of correctly and surfaces are cleaned regularly, employees take fewer days of sick leave, which results in improved overall productivity.
- **Impression:** A clean and tidy business space leaves a good impression on both its employees and its visitors. As such, it is a good idea to maintain hygiene and cleanliness not only indoors but also in any outdoor areas. Companies can purchase outdoor rubbish bins and [ashtrays](#) for outdoor and smoking areas.
- **Cost saving:** By maintaining good levels of cleanliness in the workplace, companies can save on cleaning costs and refurbishments, which may become necessary if the premises are not properly maintained
- As an entrepreneur or a business owner, the cleanliness of your workspace is probably not the first thing that comes to mind each day. Having a clean and healthy workspace is a major cornerstone when it comes to running a successful business. However, most business owners take notice of such things only when they get completely out of hand.

- This is why you need to make sure your offices are regularly cleaned and maintained in order to ensure that your employees are happy, healthy and productive while also leaving a good first impression on business partners and potential customers.
- However, leaving a good impression relates to your role as an employer as well. In order to retain both clients and employees, you need to put in your best efforts in order to satisfy both sides. This is especially true when you are welcoming a potential new employee. What they see at the start will form their opinion on their own part in the company that they may potentially work for.

1. FIRST IMPRESSIONS COUNT

- A clean and tidy work environment looks appealing and more importantly welcoming to any potential clients. It instills confidence and creates trust from the very beginning and leaves the clients with the impression of efficiency and strong attention to detail. Dirty floors or smudgy conference room tables, on the other hand, tell your potential clients that you lack the necessary professionalism to take care of your employees, let alone a new client. The same can be said for a chaotic reception area.

2. ELEVATE YOUR BRAND

- When it comes to the mind of the average consumer, a tidy work environment implies superior, quality products and services. And it doesn't matter what type of work you're doing, whether it's serving food, doing taxes or selling furniture. A potential customer will most certainly be judging your entire brand based on how your office space looks and feels, and that includes any products and services you might be offering. Don't let a messy work environment result in a potential customer walking away before you even have the chance to speak with them.

3. HAPPIER EMPLOYEES

- Most employees consider their workplaces as a second home and as such, you need to focus your efforts on keeping it clean and tidy. By keeping the work environment well-maintained, you're allowing your employees to be productive, efficient, and more importantly, happy.
- Considering that the average person spends around 8 hours a day in the workplace, you want to make sure that your workers are comfortable while doing their jobs.
- Your employees are a direct representation of your brand and business. These days, most companies are using their employees as a [marketing channel](#). They talk about their work with their friends and families and promote products and services they're working on using various social media platforms. If your employee is unhappy or dissatisfied with their work environment, they are less likely to participate in any type of business-related promotion. Not to mention that their productivity drops significantly when they're working in a messy and unclean workplace.

4. KEEPING YOUR WORKPLACE CLEAN AND TIDY

- First of all, never task your employees with cleaning duty. Invest in a dedicated cleaning crew or consider hiring a professional cleaning service, which literally works on cleaning every part of your workspace, whether it's cleaning floors and carpets, walls, windows, bathrooms, hallways and even the outside of the building. This can either be a one-time deal, or if you're completely satisfied with their services, you can hire them to clean your offices a couple of times a month.
- Experts recommend that you work on educating your workers on the importance of maintaining a clean and hygienic office space. An unclean work environment is an excellent breeding ground for various germs and allergens, which only emphasizes the need to keep it clean at all times.

5. AIR QUALITY

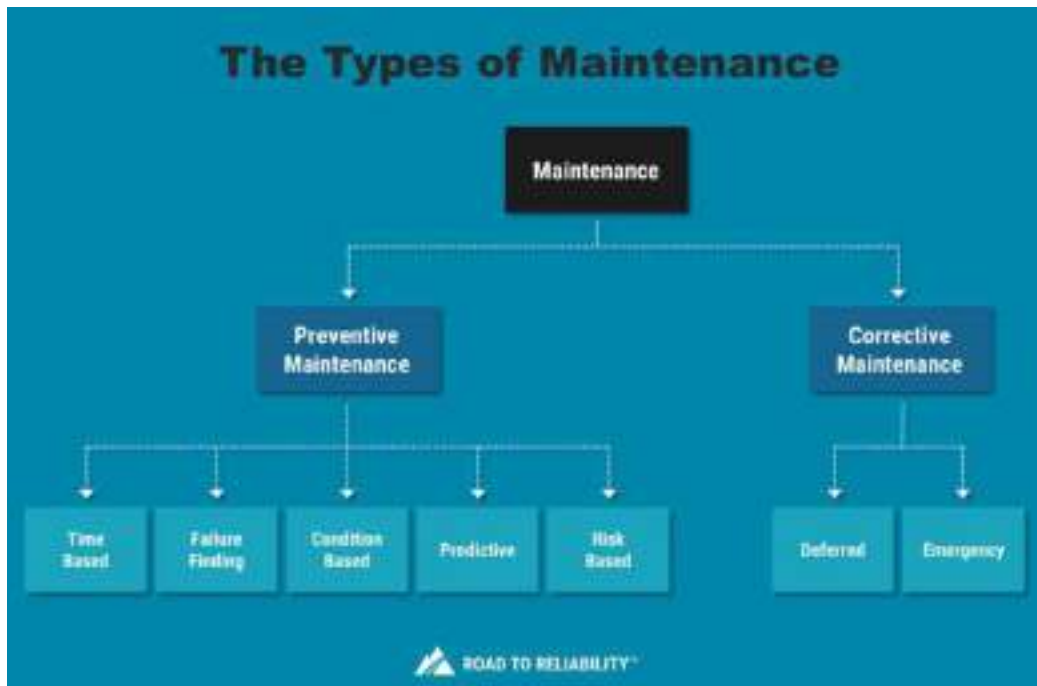
- Air quality is another factor which greatly influences the workspace performance, as well as the health of your employees.
- The number of airborne pollutants is 100 times greater than it is outdoors, which makes investing in a proper filtration system all the more urgent and necessary. A great way to improve the air quality in your company is to invest in plants which filter out excess carbon dioxide and pollutants from the air and provide your workers with additional levels clean air and oxygen.

Maintenance and Types of maintenance

As far as I am concerned terminology is not important. Other than making sure we are talking about the same thing. If what I consider to be [condition-based maintenance you call predictive maintenance](#) that doesn't really matter. As long as we can sensibly talk about the underlying principles.

When to use condition-based maintenance. And how to use it.

However, as I'm often asked questions about the different types of maintenance I decided to put a quick overview together of the types of maintenance. At least, the way I see it:



There are 9 Types of Maintenance split between Preventive Maintenance and Corrective Maintenance.

Preventive Maintenance is done before a failure occurs and consists of maintenance types like:

Time Based Maintenance,
 Failure Finding Maintenance
 Risk Based Maintenance,
 Condition Based Maintenance and Predictive Maintenance.

Corrective maintenance is done after a failure has occurred either as Deferred Corrective Maintenance or as Emergency Maintenance.

Preventive Maintenance (PM)

- [Time Based Maintenance \(TBM\)](#)
- [Failure Finding Maintenance \(FFM\)](#)
- [Risk Based Maintenance \(RBM\)](#)
- [Condition Based Maintenance \(CBM\)](#)
- [Predictive Maintenance \(PDM\)](#)

Corrective Maintenance (CM)

- [Deferred Corrective Maintenance](#)
- Emergency Maintenance (EM)

Routine

- A **routine** is the usual series of things that you do at a particular time.
 A **routine** is [also](#) the practice of regularly doing things in a [fixed](#) order.
- The players had to change their daily routine and lifestyle.
- They include the floor exercises as a regular part of their fitness routine.
- He checked up on you as a matter of routine.

Breakdown

The **breakdown** of something such as a [relationship](#), [plan](#), or [discussion](#) is its failure or [ending](#). If you have a **breakdown**, you become very [depressed](#), so that you are [unable](#) to [cope](#) with your life.

Benefits of maintenance

Benefits of optimizing your **maintenance strategy** include extending asset life, reducing asset failures, minimizing repair costs and improving health and safety. Start by assessing your current **maintenance strategy** to identify its strengths and weaknesses.

First, the benefits of preventive maintenance:

- Less equipment downtime.
- Fewer interruptions to critical operations.
- Longer asset life.
- Improved efficiency (assets in good repair tend to operate better)
- Increased workplace safety and improved compliance with OSHA.

benefits of clean environment

- Prevents illness and sickness. Germs and diseases can spread far more quickly in an unclean **environment**. ...
- Good for employee wellbeing. ...
- Increases productivity. ...
- Ensures safety. ...
- Creates a good impression for visitors.

In this era, the importance of having a [clean environment](#) as a result of increasing communication, commerce and transportation is widespread. No one can deny the benefits of having a clean environment. Whether at home, offices, industry and public places, everybody should get familiar with the healthy environment benefits. Its importance has been more recognized as environment started to get polluted as a result of industrialization in the second half of 20th century.

Now, civilizations encourage keeping the healthy and clean environment so as to give benefits to the future generations. Otherwise, it will not be possible for them to survive. A clean and healthy environment is essential for conducting business, generating wealth and most importantly for human existence.

The components of the clean environment are clean water, air, energy, and land. I bet that one who gets familiar to the importance of having a clean environment will definitely focus on adopting, promoting and maintaining a clean and healthy environment at homes, offices, public places and to say the least, wherever he goes.

3. Explain and Demonstrate cleaning and maintenance of specialized machines

Cleaning is the process of removing unwanted substances, such as dirt, infectious agents, and other impurities, from an object or environment. Cleaning occurs in many different contexts, and uses many different methods. Several occupations are devoted to cleaning

Cleaning of sewing machine While cleaning the machine, pay attention to the various parts of the machine, the machine table or stand, the work station, and even your hands, to avoid soiling the material being sewn, prevent accidents and damage to the machine. These directions mainly hold true for the lockstitch machine, but they can easily be adapted to other machine types also. The machine should always be kept covered when not in use to protect from dirt and dust. Before attempting to clean the machine, it is wise to remove the needle to avoid the danger of sewing into the finger during the cleaning process.

Material required for cleaning

1. Flat paintbrush (½" to ¾" wide)
2. Cleaning solvent or fluid
3. Soft disposable cloth
4. Screwdriver
5. Sewing machine manual
6. Small handy vacuum cleaner

All dust and dirt can be removed by wiping the part out carefully with the cloth, but if the machine is clogged, a more careful cleaning is necessary. Common tools like a small dry brush or old toothbrush or compressed air and a soft cloth are used to remove dust and lint

Tools for cleaning sewing machines

1. Before cleaning any machine, turn it off.
2. Open the slide plate and remove the bobbin case. Then remove the throat plate. Whenever it is required, remove the face plate from

1. Cleaning importance of specialized sewing machine

A **clean**, well-oiled **sewing machine** is essential for good output and safety. The maintenance of **sewing machine** is also **important** in preventing **stitching** faults. When not in use, keep the **machine** covered with a suitable cover to prevent dust from settling on it. When you have trouble with your **sewing machine**, a good rule to follow is “**clean** it first.” Many problems are caused by dust, lint, or thread ends that have collected on the working parts of the **machine**. Simply brushing lint and dust from the **machine** each time it is used is a good way to prevent many problems.

Method for oiling of the sewing machine It is necessary to oil the sewing machine periodically. If the machine is used everyday, oil it once a week. If you do not use it very regularly, then oiling once a month is sufficient. The frequency of oiling depends on its use, and sometimes on the material sewn. To oil thoroughly, remove the upper thread, needle plate, slide plate, face plate, bobbin case, and needle and presser foot. Put sewing machine oil in all oil holes and joints where one part rubs against another. One or two drops of oil are enough for each point. While oiling, turn the fly wheel back and forth to facilitate the flow of the oil to different moving parts. It is necessary to oil the shuttle case. After oiling the points on the head of the machine, tilt the machine head back to oil the points on the underside. On a treadle machine, the belt will have to be released

2. Care and maintenance of sewing machine

Most sewing machines encounter problems that can be traced to poor general maintenance or neglect. But with some simple tools and just a few minutes daily, weekly, or monthly, depending on how much our sewing machine is used, we can help keep our machine running smoothly.