

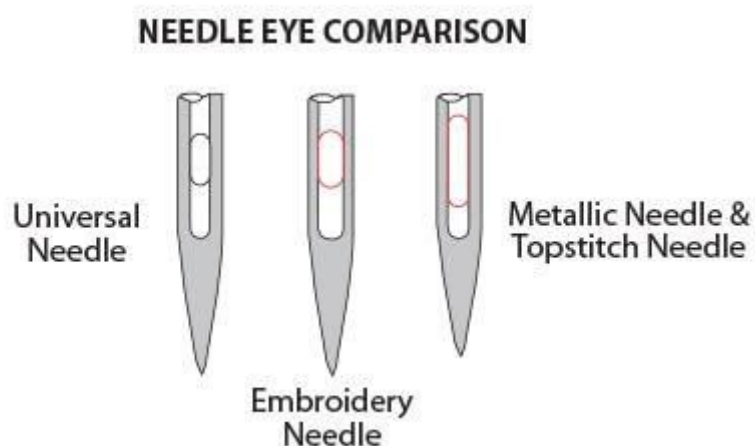
NEEDLE GUIDE

SCHMETZ SEWING NEEDLE GUIDE & SINGER MR CONVERSION

Below you will find a listing of basic machine sewing needles, their descriptions, normal uses and available sizes.

You'll also find a chart showing the Singer MR needle and its converted standard needle equivalent.

Needle Eye Comparison Chart



Denim/Jean's Needle — Modified medium ball point and reinforced blade. For denim and similar fabrics. Advanced point design is a SCHMETZ exclusive. For penetrating extra thick woven fabrics, denims, or quilts with minimum needle deflection, reduced risk of needle breakage and skipped stitches. Available sizes: 70/10, 80/12, 90/14, 100/16, 110/18, Assorted, Twin.

Embroidery Needle — Designed for rayon and polyester embroidery applications. Available sizes: 75/11, 90/14, Assorted, Twin.

Jersey / Ball Point Needle — Designed for sewing on knits and some stretch fabrics. Available sizes: 70/10, 80/12, 90/14, 100/16, Assorted.

Leather Needle — Designed for leather, artificial leather and heavy non-woven synthetic applications. Available sizes: 70/10, 80/12, 90/14, 100/16, 110/18, Assorted.

Metallic Needle — Designed with an enlarged polished eye to accommodate specialty threads by preventing shredding. Available sizes: 80/12, 90/14, Twin.

Microtex/Sharp Needle — Sharp point for straight stitches on delicate and microfiber fabrics. Available sizes: 60/8, 70/10, 80/12, 90/14, 100/16, 110/18, Assorted.

Quilting Needle — Special taper to shaft and sharp point to prevent damage to material sewn in layers. Available sizes: 75/11, 90/14, Assorted.

Stretch Needle — Designed for synthetic suedes or elastic knitwear. Designed with a deep scarf to prevent skipped stitches. Available sizes: 75/11, 90/14, Twin.

Topstitch Needle — Extra sharp with an enlarged groove to accommodate large diameter threads and dense fabrics. Available sizes: 80/12, 90/14, 100/16.

Universal Needle — General sewing of knit and woven fabrics. Slight ball point. Available sizes: 60/8, 65/9, 70/10, 75/11, 80/12, 90/14, 100/16, 110/18, 120/19, Assorted, Twin, Triple.

Singer MR Conversion Chart

<u>SINGER MR NEEDLE</u>	<u>CONVENTIONAL NEEDLE</u>
MR1	60/8
MR2	65/9 - 70/10
MR2.5	75/11 - 80/12
MR3	85/13 - 90/14
MR3.5	95/15 - 100/16
MR4	105/17 - 110/18
MR5	120/19 - 130/21
MR6	140/22 - 160/23
MR7	180/24 - 200/25

SCHMETZ HOUSEHOLD NEEDLE CHART

Choose your sewing machine needle size according to your thread thickness- and the needle type according to fabric application.

Using the correct needle will help to make your sewing project a success!



Universal

Size: 60/8, 65/9, 70/10, 75/11, 80/12, 90/14, 100/16, 110/18, 120/19, Assorted, Twin, Triple

Color Code: None

Feature: Slightly rounded point.
Fabric Use: Numerous – woven and knits. A great general purpose needle.



Jersey (Ball Point)

Size: 70/10, 80/12, 90/14, 100/16, Assorted

Color Code: None

Feature: Medium ball point.

Fabric Use: Knits & some stretch fabrics. Made especially for sewing on knits. The medium ball point does not damage or break knit fibers.



Stretch

Size: 75/11, 90/14, Twin

Color Code: Yellow

Feature: Medium ball point, special eye and scarf.

Fabric Use: Elastic materials and highly elastic knitwear. The medium ball point, specially designed eye and scarf prevent skipped stitches.



Jeans

Size: 70/10, 80/12, 90/14, 100/16, 110/18, Assorted, Twin

Color Code: Blue

Feature: Modified medium ball point and reinforced blade.

Fabric Use: Denim and similar fabrics. Advanced point design is a SCHMETZ exclusive. For penetrating extra thick woven fabrics, denims, or quilts with minimum needle deflection, reduced risk of needle breakage and skipped stitches.



Microtex (Sharp)

Size: 60/8, 70/10, 80/12, 90/14, 100/16, 110/18, Assorted

Color Code: Purple

Feature: Very slim acute point.

Fabric Use: Micro fibers, polyester, silk, foils, artificial leather, coated materials. Very thin acute point creates beautiful topstitching and perfectly straight stitches for quilt piecing when precision is paramount.



Metallic

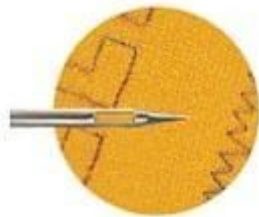
Size: 80/12, 90/14, Twin

Color Code: None

Feature: Elongated eye.

Fabric Use: Metallic and other specialty threads. A “must have” for sewing with sensitive metallic threads.

The elongated eye prevents shredding and breaking of metallic threads.



Embroidery

Size: 75/11, 90/14, Assorted, Twin

Color Code: Red

Feature: Light ball point, wide eye and groove.

Fabric Use: Use with rayon, polyester and other specialty embroidery threads. The special scarf, widened groove and enlarged eye protect fragile threads and guard against excess friction allowing trouble-free embroidery and decorative stitching.



Quilting

Size: 75/11, 90/14, Assorted

Color Code: Green

Feature: Special taper to the slightly rounded point.

Fabric Use: Made especially for piecing and machine quilting. The special tapered design allows easier fabric penetration and helps eliminate skipped stitches.



Topstitch

Size: 80/12, 90/14, 100/16

Color Code: None

Feature: Extra long eye.

Fabric Use: Topstitch, heavy, multiple or poor quality threads. Achieve perfectly straight stitch lines and even stitches when using a straight stitch plate.



Gold Embroidery

Size: 75/11, 90/14

Color Code: None

Feature: Titanium Nitride coating, slightly rounded point and enlarged eye.

Fabric Use: Coarse and densely woven materials. Slightly rounded point and enlarged eye are perfect for embroidery on most fabrics and with the most fragile specialty threads. Titanium coating resists adhesives, improves needle wear & penetration of coarse and densely woven fabrics.



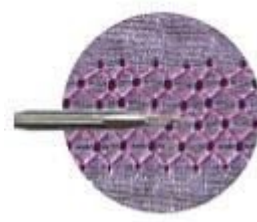
Leather

Size: 70/10, 80/12, 90/14, 100/16, 110/18, Assorted

Color Code: None

Feature: Cutting point.

Fabric Use: Leather, artificial leather, heavy non-woven synthetics. Do not use on knit or woven fabrics



Hemstitch

Size: 100/16, 120/19, Twin

Color Code: None

Feature: A wing on each side of the needle.

Fabric Use: Light or medium weight loosely woven fabrics. Popular for heirloom sewing and to create decorative cutwork.



Quick Threading

Size: 80/12, 90/14

Color Code: None

Feature: Universal needle with a slip-in threading slot in the eye.

Fabric Use: Numerous – woven and knits. A general purpose needle for effortless threading.



Double Eye

Size: 80/12

Color Code: None

Feature: Universal needle with two eyes.

Fabric Uses: Numerous – woven and knits. Use two different threads for shading and texturing effects for embroidery and top stitching.

MULTIPLE NEEDLES

Twin

Double needles are actually two needles mounted on one shaft used to create two rows of stitches simultaneously. Use two spools of thread and one bobbin thread.

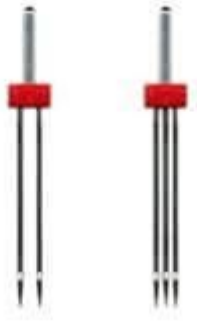
Universal Twin

Sizes: 1.6/70, 1.6/80, 2.0/80, 2.5/80, 3.0/90, 4.0/80, 4.0/90, 4.0/100, 6.0/100, 8.0/100,

Assorted.

Double Hemstitch

Size: 2.5/100
A hemstitch needle and a universal needle with a 2.5mm separation.



Embroidery Twin

Size: 2.0/75, 3.0/75

Metallic Twin

Size: 2.5/80, 3.0/90

Jeans Twin

Size: 4.0/100

Size: 2.5/75, 4.0/75

Stretch Twin

Size: 2.5/80, 3.0/80

SCHMETZ SEWING MACHINE NEEDLE PRIMER

SCHMETZ is internationally known as the finest sewing machine needle manufacturer in the world. Sewers everywhere count on the quality of their products. Your choice of high quality sewing machine needles can result in the same high quality of maintaining smooth, even stitches in your work.

Choosing a Needle

SCHMETZ makes a variety of needles created especially to do particular sewing jobs very well. What many sewers don't know is how to choose the correct type and size of needle for the work that they are doing. It is crucial to choose the correct needle **to complement your thread choice and the kind of sewing work that you are doing.**

Many just continue to use the needle that came in their machine until it breaks. Sewing machine needles are not indestructible ... they will not last forever. The points get dull from repeated use and the shaft may get bent from hitting pins in the fabric. **A general rule of thumb is to replace the needle after eight (8) hours of use and at the beginning of each project.** Each time you buy thread or fabric you should be asking yourself what kind of needle will work best with the project you have in mind.



Here's what you need to know.

Choose your needle size based on the type and weight of thread that is being used as well as the fabric that is being sewn. The goal is to have the needle slide easily through the fabric without damaging the fibers or creating too large of a hole, and to carry the thread smoothly without damaging it when sewing.

Each package of SCHMETZ needles has European and U.S. size equivalents written at the very bottom of the front of the plastic case. Typically they range from 8/60 (the finest) to 20/120 (the largest). This number, indicating the size, will help determine the suitability of the needles to the fabric, thread size and the kind of sewing being done. In general, the finer the thread and the finer the fabric that is being sewn, the finer the needle should be.

Each package has the name of the needle it contains. These names can help you choose the right type of needle for the work you are about to do (i.e., "Universal," "Quilting," "Sharp," "Metallic," "Topstitch," "Embroidery," etc.). Each type of needle is made for a particular job and should be chosen according to the type of fabric and thread used.

Cheaper carded needles do exist in the market and many of them would like you to believe that they are just as good as SCHMETZ Needles. No other needle manufacturer can match the amount of detail and quality of material that goes into each needle before it leaves the SCHMETZ factory. Remember, not all needles are created equal. Insist on high quality SCHMETZ Needles for all of your sewing projects!

Different Types of SCHMETZ Sewing Machine Needles

Ball Point Needle

Made especially for sewing on knits. Its unique point does not damage or break knitted fibers. It comes in size 10/70 through 16/100 and in an assortment pack. Choose the size that will handle the thread being used when sewing on knits.

Denim/Jeans Needle

Made especially for sewing through densely woven materials such as denim or imitation leather. It features a modified medium ball point and a reinforced blade. Some quilters use it when sewing through many layers of fabrics, especially high thread count batiks.

This needle comes in sizes 10/70 through 18/110. Choose the size based on the type of thread being used. The heavier jeans threads work best with the larger needle.

Double Eye Needle

Used for embroidery and topstitching with decorative threads to produce decorative seams. They have two (2) eyes, one right above the other. Two different threads can be used for shading and texturing effects. These needles work in machines that use the 130/705H system needles.

Double Needle (Twin Needle)

Comes in a variety of needle types and sizes. Double needles are actually two needles mounted on one shaft and are used to create two rows of stitches at the same time.

When using a double needle two spools of thread will be used in the top of the machine. Pass the thread from each one on a different side of the tension discs and thread one into each needle. Only one bobbin thread will be used and the stitches will create a double "web" of stitches on the back of the work. Check to see how you like this under stitching prior to using these needles.

The following SCHMETZ Double Needles are available:

Double Universal
Denim, Hemstitch
Machine Embroidery
Metallic and
Stretch style needles.

Choose the type that is right for your fabric as you would with any of the needles above. The package of needles will show two numbers. One is the needle size; the other is the distance between the two needles. This distance varies from 2.0 mm to 6.0 mm. Remember that the needles must fit through the hole in the stitch plate, so if you have been using a straight stitch plate you must change it to a zig-zag stitch plate to avoid hitting the plate with the needles! This could be a disappointing and expensive mistake!

Embroidery Needle

For use with rayon and other specialty machine embroidery threads including polyesters. The special scarf, long smooth groove, and large eye, of this needle protect these more fragile threads and guard against excess friction.

These needles come in size 75 and 90. The beautiful sheen of these threads results in outstanding embroidery work. Check the size of the thread and use the appropriate size needle for each thread — remember the finer the thread, the smaller size needle that should be used.

Gold Embroidery Needle

The special Titanium Nitride ceramic coating improves needle wear resistance in high stitch count applications and penetration of coarse or densely woven materials. Has a slightly rounded point for embroidery on most fabrics. The enlarged eye accommodates special application threads.

Hemstitch Needle

Sometimes called a Wing Needle. It is used to create decorative openwork or cut-work on tightly woven fabrics.

This needle comes in sizes 100 and 120 and should be used with caution as it is very sharp and is made to actually cut the fabric. The user may want to use a stabilizer and experiment with decorative stitches when using this needle.

Carefully hand turn the needle through the stitch movements before actually trying it on the project to assure that the throat plate opening will accommodate the design! Using a straight stitch plate will probably result in a broken needle.

Leather Needle

Has a slightly sharp cutting point for leather and other heavy non-woven synthetics including imitation leather. It comes in size 8/60 through 18/110 and in an assortment package. Choose the size based on the type and size of thread being used.

Metallic Needle

A “must have” for sewing with metallic and other specialty threads. It comes in sizes 80 and 90. The elongated eye prevents shredding and breaking of metallic threads. If your customers have struggled with metallics before and blamed the thread, have them try again with this specialty needle for trouble free embellishment with these beautiful but sometime fragile threads.

Microtex Sharp

A very slim needle with a thin shaft that helps make very straight stitches. It was developed for the modern micro- fibers and polyesters and high thread count, high

quality fabrics used today. The point is very sharp — thus the name — but because of this it is a bit more fragile and needs to be changed more regularly.

This is a great needle for piecing high thread count fabrics like Batiks, silks, and microfibers. It is also used for beautiful topstitching or edge stitching. It comes in sizes 60, 70, 80, and 90.

Quilting Needle

Made especially for piecing and machine quilting. The thin tapered design of these needles allows them to pass through many layers smoothly to help eliminate skipped stitches and keep stitches even.

These needles come in size 75 which is fine for piecing with 50 weight threads or size 90 which works well with heavier plain or variegated 40 weight threads for quilting. This needle is also sold in an assortment pack containing both sizes 75 and 90.

Self-Threading Needle

A general purpose needle with a slip-in threading slot for people who have difficulty threading needles. These needles are helpful for children, those with vision problems, or those having difficulties with fine motor coordination resulting from arthritis or other conditions.

They come in sizes 12/80 and 14/90. Due to the limited types and sizes available it may be preferable to use a needle threader which is purchased separately or built into the machine to accomplish a full range of sewing techniques.

Stretch Needle

Made especially for synthetic suede or highly elastic synthetic knit wear. This needle is constructed with a medium ball point to help prevent skipped stitches. It comes in sizes 11/75 and 14/90. Choose the size based on the type and size of thread being used.

Topstitch Needle

Has an extra large eye and large grooves to accommodate topstitch thread. This needle helps stitch perfectly straight lines and even stitches.

Triple Needle

Triple needles are actually three needles mounted on one shaft and are used to create three rows of decorative stitching at the same time.

It comes in sizes 10/70, 12/80 and 14/90 and 16/100. It is helpful to use a straight stitch plate if you are expecting perfectly straight top stitching results. Choose the size based on the type and size of thread being used.

Universal Needle

A general purpose needle that can be used on knit or woven fabrics. A casual sewer who might repair a pair of jeans today, a child's t-shirt tomorrow, and some lingerie next month will probably use this needle most often. It will do a number of tasks sufficiently.

It has a long scarf that is great for zigzag stitching and it does not damage knits. It is sharp enough to go through a lot of fabrics but it does have a slight ball point which does not make it ideal for going through many layers or high thread count fabrics.

This needle comes in a wide range of sizes from size 60 to size 120.

THREAD SIZING GUIDE

Thread Size Measurement: Two primary methods, length and weight.

Weight — In weight measurements, higher numbers reflect finer or lighter threads. The “weight” of a particular type of thread refers to the length of a given weight of thread. Dividing the length of thread by a set weight derives the exact measurement of a thread weight. A thread is labeled 40 wt. because one gram is 40 meters long. A thread is labeled 30 wt. because one gram is 30 meters long. A 30-wt. thread is a “heavier” thread, meaning a thicker cross section, because a much shorter thread weighs the same as the 40 wt.

Length — in length measurements, higher numbers reflect thicker or heavier threads. “Denier” refers to the weight in grams of 9000 meters of thread. If 9000 meters weighs 1120 grams, it is a 120 d thread. Most embroidery threads are 120/2, which equals 2 strands of 120-denier thread for a 240 denier total.

“Tex” refers to the weight in grams of 1000 meters of thread. If 1000 meters weighs 25 grams, it is Tex 25.

Rule of Thumb — 40 Wt. = 240 denier = Tex 25. All work in a size 75/11 needle. SCHMETZ advises that the diameter of the eye of the needle should be 40% larger than the diameter of the thread.

Using the rule of thumb, consider a larger needle when using threads heavier than 40wt/240denier/tex25. Consider using a smaller needle when using finer threads.

Conversion Factors

Weight to Denier 9000/weight	Tex to Denier Tex x 9
Weight to Tex 1000/weight	Tex to Weight 1000/Tex
Denier to Weight 9000/weight	40 Weight = 240 Denier = Tex 25
Denier to Tex Denier x 0.111	30 Weight = 300 Denier = Tex 33

The Physical Dimension of a Thread Affects:

- **Both top and bobbin tensions** — Changing the thread physically changes the tension. When thread size is changed, the upper and lower tensions should be checked.
- **Thread displacement** — Too many thread fibers in a set space make the fabric pucker. Reduce field density, scale pattern or increase stitch length.
- **Needle selection** — Eye of the needle should be 40% larger than the diameter of the thread. When going to a larger size thread, a larger needle should be used.

SEWING MACHINE NEEDLE TROUBLESHOOTING GUIDE

Important Points to Remember

- Needles DO NOT last forever, they should be replaced approximately every 8 hours
- The eye of the needle should be 40% larger than the diameter of the thread
- When going to a larger size of thread, a larger needle should be used
- Use the appropriate needle for the type of fabric being sewn

Problem	Causes	Solutions
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Upper Thread Breaks	Incorrect threading	Rethread machine properly
	Knots or twists in thread	Replace thread
	Tension too tight	Reset bobbin and top thread tension
	Damaged/old needle	Replace needle
	Needle too small	Use correct needle for thread and application
Bobbin Thread Breaks	Bobbin case incorrectly threaded	Remove bobbin and re-thread with bobbin turning clockwise
	Bobbin case incorrectly inserted	Remove and re-insert bobbin case
	Bobbin does not turn smoothly in bobbin case	Check that bobbin case and bobbin are in “round”; replace if necessary
	Lint in bobbin case	Clean bobbin case and surrounding machine area
	Bobbin tension too tight	Check and reset bobbin tension
		Reset top and bobbin tension
Skipped Stitches	Thread tension too tight	Replace needle
	Needle damaged	Use correct needle size
	Needle wrong size	Have sewing machine adjusted for timing; hook to needle clearance; needle bar height
	Sewing machine out of adjustment	
Frayed Stitches	Needle too small	Increase needle size
	Tension too tight	Reset tension
	Damaged thread	Replace thread
		Rethread machine with presser foot “up”
Thread Loops on Bottom	Thread not in top tension	Rethread machine incorporating take up lever
	Machine incorrectly threaded	Reset top tension
	Top tension too loose	Remove burr
	Burr on hook mechanism	Ensure correct needle for fabric & thread
Irregular Stitches or Malformed Stitches	Wrong needle size	Un-thread machine and carefully rethread
	Incorrect threading	Reset lower and upper thread tension
	Upper tension too loose	Check presser foot pressure
	Operator pulling fabric	Rewind bobbin
	Bobbin wound unevenly	Decrease stitch length
		Change needle often
Fabric Puckers	Excessive stitch length	Check bobbin and upper tension
	Needle point is blunt	Use stabilizer
	Excessive thread tension	Decrease field density; scale embroidery designs; increase stitch length
	Fabric is too soft	Check presser foot, needle plate, feed dogs
	Thread displacement — too much thread in a small area	
	Fabric not feeding	

DICTIONARY



BLUKOLD needle — Special needle with a roughened, phosphorated surface coated with a non-stick coating. This needle surface prevents or greatly reduces adhesion of residues of melted synthetic materials, for longer duration than, for example, chromium plated needles. The needle remains cleaner longer . . . skipped stitches and thread breakage are minimized. **(Note: This needle is no longer manufactured.)**

Double needle — Special needle used in household zig-zag sewing machines, consisting of two needle blades which are connected to one shank by means of a plastic bridge. Used for pattern controlled decorative seams with two needle threads as well as for the sewing of tucks by means of an inserted cord.

Flatlock sewing machine — Machine for sewing covered seams, used for neat sewing of raw edges or single lapping of pieces of material, simultaneously covering top and bottom of raw edges.

Gauge — Mesh density per unit of length in hosiery and knitted fabrics. For linking machines it indicates the number of points per unit of length (usually per inch). This must match the mesh density of the knitted goods if the material is to be linked with the meshes matching exactly. A small gauge indicates the use of thicker needles, and a larger gauge, the use of thinner needles.

Hook needle — Needle similar to a crochet needle, used in Cornely, saddle stitch, and linking machines.

Land — Hump-like section of the needle between the eye and scarf. On chain stitch needles in conjunction with another land between scarf and second long groove, necessary for the formation of a loop of the needle thread. This ensures that in machine without needle bar rise, the loop of the needle thread can still be securely caught by the looper.

Long groove — Its purpose is to guide the needle thread to the eye. The cross section is 40% of that of the needle blade. The diameter of the sewing thread to be used (not the label number) should therefore be a maximum of 40% of the needle size (NM). chain stitching needles have a second long groove on the opposite side of the needle. This serves to guide the part of the sewing thread emerging from the material vertically to the eye during needle penetration, to guarantee correct stitch formation. On chain stitch needles used in machines with loopers working parallel to the sewing direction, both long grooves are spirally wound.

Needle bar rise — The distance which the needle in a sewing machine has to pass from the lower dead-point during the upwards lift. necessary to form a loop which can be securely caught by the point of the hook.

Needle bight — Lateral deviation between two successive stitches perpendicular to the seam direction.

Needle distance (NE) — Distance between the center axis lines (or points) of the needles when working simultaneously with several needles (also applies to double and triple needles). In needles for twin-needle machines, the needle distance is often indicated by code letters behind the system designations, i.e., 134 FLG-A. The code letters used are A, B, C, and D.

A: needle distance 0.85mm, only possible with NM 60-80

B: needle distance 1.05 mm, only possible with NM 70-90

C: needle distance 1.25 mm, only possible with NM 80-100

D: needle distance 1.45 mm, only possible with NM 100-110

Overlock machine — Overcasting sewing machine for trimming locking edges of material.

Safety stitch machine — Machine for sewing together parts of material and simultaneously trimming and locking of material edges. In most cases two stitch types work independently from each other, i.e., stitch types 401 plus 503, but one stitch type only is also possible, i.e., stitch type 507 or type 512 (so-called imitation safety stitch).

Scarf — Recess of the needle blade above the eye, on the opposite side of the sewing machine needle to the long groove. It differs in shape and length and enables the hook to be placed closer to the center line (axis) of the needle.

Schiffli needle — Needle used in automatic Schiffli embroidery machines (large automatic embroidery machines). These work with two needle frames each equipped with up to 1800 needles.

Seam direction — Direction in which the stitch types are successively arranged.

Sewing direction — Direction of the seam progression from stitch to stitch.

Stitch density — Number of stitches performed in relation to the unit of length (i.e., 5 stitches/cm.

Stitch distance — Shortest distance between two consecutive needle penetrations in sewing direction.

Stitch formation — The part of the sewing operation which, in general terms, concerns the piercing of the material by the needle, the simultaneous passing of the

thread through the material, and the interlocking of the thread either by the material, with itself, or with another thread. According to the stitch type, the stitch can also be formed by several needles and several sewing threads.

Stitch length — Distance between two successive stitches in the seam direction.

Triple Needle — Special needle used in household zig-zag sewing machines, consisting of three needle blades connected to one shank by means of a plastic bridge. Used for pattern-controlled decorative seams with three needle threads.

Twist — twisting of certain needle parts during manufacture. Needles with twisted blade = needles with spiral long groove. Needles with twisted point groove = needles with twisted groove below the eye, i.e., CL (left twisted point groove).

Wing needle — Special needle for household sewing machine with wings to obtain the hemstitch effect.