

Parameters for quality testing and control

- STITCH QUALITY
- QUALITY OF THREADS
- STITCH LENGTH
- BUTTON STRENGTH
- ACCESSORIES AND EMBELLISHMENTS

Sewing Threads



Stitches are formed from thread that must be compatible with the stitch types, seams and fabrics on which it is being used. Sewing threads are expected to form strong, smooth, uniform seams or stitching patterns. Thread, although a small part of materials cost, can impact production costs and customer satisfaction. Thread is a major factor in quality and performance of seam, durability of a garment and consumer satisfaction.


Function of Sewing Thread



Sewing threads are special kind of yarns that are engineered and designed to pass through a sewing machine at high speed while forming a stitch .Threads are expected to maintain the aesthetics and performance standard for stitching and seams during the life of a product.

Performance

Thread performance is related to sewability and seam performance . Sewability of thread is dependent on consistent loop formation and resistance to breakage. Loop formation is necessary to form a stitch.A thread loop must form below the fabric that will be picked up by a hook or looper and interlooped with the lower thread to form a stitch . If the loop is not formed properly and is missed , the stitch will not form-hence, a skipped stitch.



Thread tension or twist may interfere with appropriate loop formation and result in skipped stitches .Thread must be durable enough to withstand the abrasion and needle heat that occur with high speed sewing ,the chemical forces of garment finishing and care and stretch and recovery during wear.

Sewing problem related to thread include thread breakage, skipped or irregular stitch formation ,fusing or melting ,and seam puckering.

Seam performance is related to loop formation ,seam strength, abrasion resistance, elasticity, chemical resistance, flammability and colorfastness. Seam performance depends upon the characteristics of the thread that is used. High quality thread is uniform in diameter and sewable on a number of different types of fabrics and machines. Longitudinal uniformity of thread contributes to uniform strength and reduced friction as it passes through the stitch forming mechanisms . Uniformity minimizes threads breakage and the associated costs of rethreading machines , repairing stitching , and producing inconsistent quality.

Sewing Thread Inspection

- a) Thread construction:- To know about thread construction the following should be tested-
- 1) Thread count
 - 2) Thread ply
 - 3) Number of twist
 - 4) Thread balance
 - 5) Thread tenacity
 - 6) Thread elongation
- b) Sew ability :- The sewing ability of a thread is called sew ability . During sew ability test the following quality of thread should be tested-
- 1) Imperfection
 - 2) Finish
 - 3) Package density
 - 4) Yardage

Seams

In most mass produced apparel, seams are formed when two or more pieces of fabric are joined by stitches . Manufacturers may have limited knowledge of stitch and seam types because of product specialisation in other words they are familiar with seams and stitches used on the products they make.

Seams must have flexibility and strength . Garment design ,end use fabric type and weight, operation skills and equipments are analyzed to determine which seam type and characteristics are most appropriate for a particular style



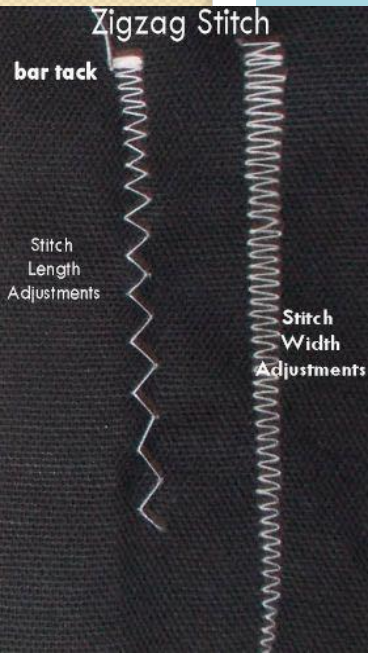
Seam Dimensions

Seam have three dimensions :

i) Length ii) Width iii) Depth


Seam length is the total distance covered by a continuous series of stitches ,such as side seam or shoulder seam. Garment design and dimensions of the component determine it. Exact measurement of seam length are used in costing, calculating thread usage, writing specification and monitoring quality standards. Seam length can be a factor in determining stitch type ,seam type and handling procedures .Long seam are often sewn on chain stitch and over edge machines, that have high rpm . but quality and performance standards for each product will ultimately determine the stitch type to be used

Seam Width considerations are width of seam allowance, stitch width relative to seam, and the seam heading of a lapped or top-stitch seam .A seam allowance is measured from the cut edge of fabric to main line of stitches. This is the amount of fabric that extends beyond the actual seam line. Width of a seam allowance is often a factor in judging garment quality, reducing yarn slippage ,and providing fabric for alterations. A wider line of stitches has more holding power and strength than a narrow line of stitches. Wider seam allowances may increase costs because of the fabric they require.



Stitch Width Adjustments





A Seam heading is the distance from the folded edge of the top ply to the first line of stitches. On a patch pocket, the seam heading would be the distance between the stitches and the folded edge of the pocket. A header reduces the strain on the cut edge of fabric and makes the seam stronger.

Seam strength is an important factor in determining the durability of a garment. Seam strength is determined by resistance to pulling force and abrasion. Seam tenacity is the amount of force necessary to break the fabric or the weakest stitch of seam.

Seam strength is related to the stitch type, thread strength, thread tension, seam type, seam width and stitches per inch. Seam strength is important to durability, the seam need not be stronger than the fabric being sewn.

Stitches

Stitch classification is based on structure of the stitch and method of interlining. Stitch properties such as size, balance and consistency determine stitch quality performance, and appropriateness for end use. Stitch quality must be good enough to satisfy the consumers desire for performance and aesthetics.

Stitch properties:- Properties of stitches that relate to aesthetics and performance are size, tension, and consistency. Stitch size has three dimensions: Length, Width and Depth. Each may affect the aesthetics appearance, durability and cost of a garment. Stitch length is specified as the number of stitches per inch (spi) and can be indicator of quality. This quality may be referred to as stitch density. Stitch length is determined by the amount of fabric that is advanced under the needle between penetration. High spi means short stitches; low spi means long stitches. Long stitches are usually less durable and may be consider low quality because they are more subject to abrasion, snagging through which allows the stitching of seam to show when stress is placed on seam. Men's shirt with 22 spi are considered higher quality than similar shirts made with 8 spi. Shorter stitches are more subtle, less obvious lines of stitches that are often more visually appealing. Generally, the greater the spi, the greater the holding power and seam strength on the negative side.




Closures

Closures include zipper, buttons ,hooks and eyes, hook and loop fasteners and snaps. Each type uses unique terms and has characteristics that should be considered when developing specs.

Buttons

Buttons are small knobs of discs of materials that are used within corresponding slits or buttonholes as a unit to secure two parts of product together or close an opening in a product. Unlike zippers, buttons do not create a continuous clouser, but rather are placed at specified distances throughout the length of an opening. Buttons are attached by thread that passes through either shanks on the back of the button or holes in the visible knobs or disk of the button.

Performance of buttonhole unit depends on the materials and structures and its compatibility with the product .An endless variety of shapes ,sizes, styles and colors of buttons made up of many materials is available. Buttons can be made in small lots by artists and craft persons .Buttons can be strictly utilitarian or can add interest, color ,texture ,identification or style to a product. Some buttons support other buttons ,especially those of greater value and large size or those used under greater stress.



Many materials are used to produce buttons .The type of material relates to the product type ,style and cost, as well as target market .Buttons are made from naturally occurring materials including wood, leather ,bone ,shells rocks ,horns and hulls of nuts that incorporate natural variations in color and texture.Synthetic plastics,including polyester, nylon , acrylic resins are used to imitate natural button materials. Metal buttons can be made from base metals, such as nickel or tin or brass.

Quality Standards

- 1) Buttons should coordinate with the garment's design,fabric and Garment care.
- 2) Buttons are spaced appropriately for the size and location .
- 3) The fabric under the buttons is additionally reinforced when necessary.
- 4) The buttons are sewn securely.
- 5) No loose threads hang from the buttons.
- 6) The buttons have a self or thread shank appropriate to the fabric's thickness.

Zippers

Zippers close an opening in a product when two rows of stringers interlock as they pass through a slide. Zippers make closer fitting garments possible, accept seam stress than other openers and produce a smoother and flatter appearance compared to other closures. Zipper with decorative pulls and laces, color coordinated parts may be selected for their aesthetics contribution to the product's appearance. Zipper failure may result in product failure and rejection by the consumer.

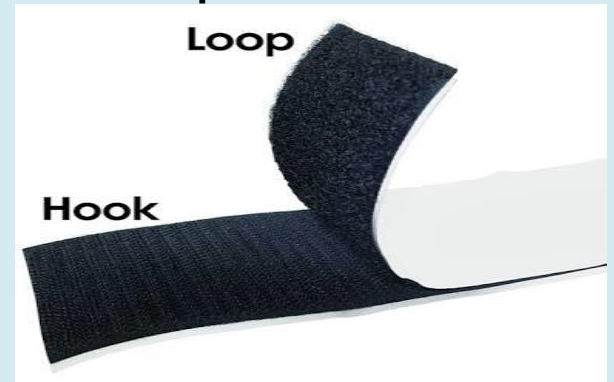
Quality Standards

- 1) The zipper type and application are suitable for the garment's quality, design, fabric, and use
- 2) The zipper length is adequate for ease in wear or use
- 3) The zipper when closed, is flat and smooth, free from puckering and does not buckle.
- 4) The zipper is securely inserted into the garment at the intended position.
- 5) The lapped zipper covers the stitching on the under lap so that the stitching is not visible.



Hook and Loop Fasteners

Hook and loop fasteners, such as Velcro are contact fasteners made from nylon tapes; one tape is covered with tiny hooks and the other with tiny loops .The tapes are available in many colors and weights, and as continuous types or various die cut shapes .Important factors include tape size ,hooks per square inch, hook strength and hook length .Tapes can be woven or knit pile fabrics that are heat set to retain to shape of the hook loop.



Snaps

Snaps are another type of mechanical fastener that produces a non-continuous closure. They provide a less formal look, which should be easy to press, close and pull open. They require more precision in matching the two parts and greater strength to operate than buttons.

Quality Standards

- 1) Durable covering are used where appropriate.
- 2) The garment is reinforced on the wrong side, usually with interfacing.
- 3) Fasteners are attached securely and neatly.
- 4) Fasteners used in visible applications are suitable for the garment design and fabric.



Cap

Socket

Post

Stud



Snaps Cap

Art. 302/303
Socket

Art. 302/303
Post

Art. 302/303
Stud

Decorative Detail

The trim enhances the garment or make it unusual in some way ,without overpowering the garment's design.

Soft Trims

Soft trims include items such as lace, braid ,ribbon ,piping and bias binding.

- 1) The trim is suitable to the garment fabric's weight, design and care requirements.
- 2) The trim is securely attached to the garment.
- 3) The trim is attached in an inconspicuous manner, unless the method of attachment constitutes part of the decorative effect. Flexible trim is used on curved areas and applied without stretching or puckering of the trim or the garment.
- 4) There is no excess bulk at the joins or the ends.



Hard Trims

Hard trims include decorative items such as buckles, belts, studs, and sequins.

- 1) The hard trim is compatible with the garment fabric's weight, style, and care requirements and will not damage the garment.
- 2) The hard trim is securely attached.
- 3) Beads ,sequins, and studs are applied so that the fabric does not pucker, and the underside application is smooth.
- 4) Belts meant to be firm have a stiff backing which is securely attached and does not show on the face of the belt.
- 5) The belt buckle is securely attached to the belt and holds the free end of the belt securely when closed.



Fabric and Stitchery Trims

This category includes self-fabric and coordinating fabric trims such as ruffles and bows ,appliques, and decorative stitchery.

- 1) Ruffles are neatly finished and smooth and have ample fullness, even gathers ,and no puckers or pleats.
- 2) Appliques are securely attached to the base fabric , with no puckering ,raveling .
- 3) Fabric bows are neatly turned ,with no seam wells and with symmetrical ends.
- 4) Fabric flowers are neatly finished with no raw edges and are securely attached .
- 5) Decorative stitchery does not distort the garment.
- 6) The thread used in the stitchery is colorfast.
- 7) Care requirement of the appliques and the stitchery are compatible with those of the garment.

