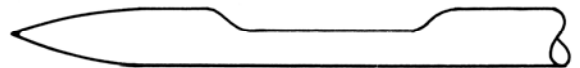


“What’s in a Stitch”



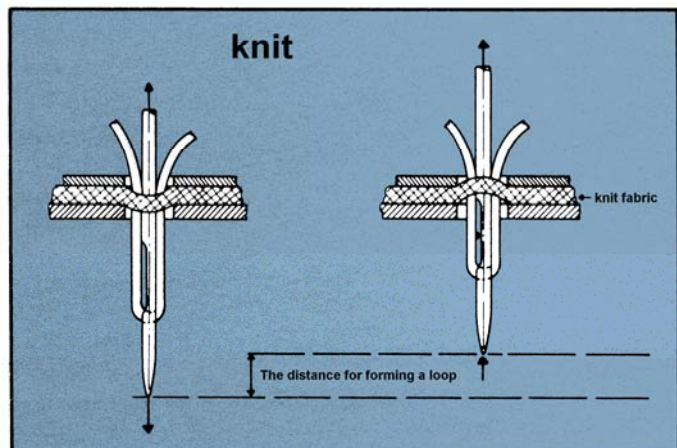
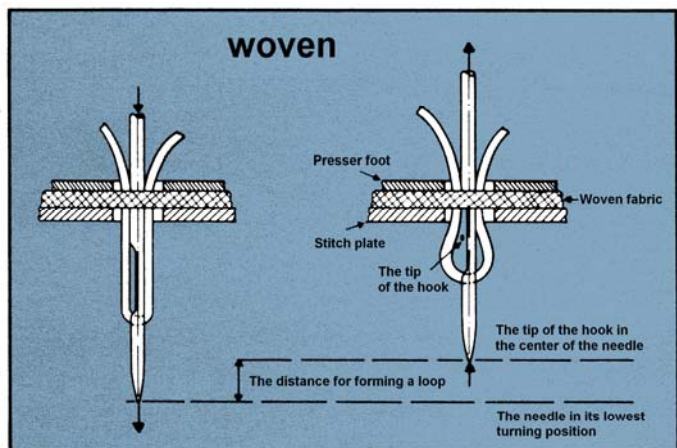
The sewing machine needle, a vital machine part, plays an important role in successful clothing construction.



To insure accurate and professional stitching, the needle must be the correct type and size for the fabric being sewn.

Forming a perfect stitch is the basis of garment construction; therefore, it is important to understand how a stitch is formed. Each individual part of the needle contributes greatly in completing a stitch when sewing on a knit or a woven fabric.

Once the needle has reached the lowest position, a pre-determined upward movement forms a thread loop behind the needle, permitting the hook point to pass between the thread and the needle, locking the stitch.



The needle penetration on a knit fabric causes a flexing movement of the fabric. This flexing movement and friction reduces, or may entirely eliminate the thread loop. The elongated scarf of the 70511 needle system allows the hook point to easily pass between the needle and thread, locking a stitch. Use of a needle without this scarf could result in skipped stitches.

The 705 Needle System

Sizes/Types

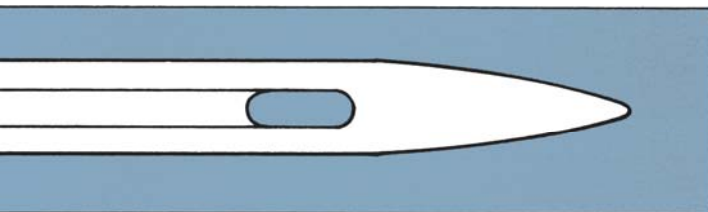
Viking sewing machines use the needle system 705H. The needle size is determined by measuring the width of the needle blade. Metric measurements are used for this needle system; however, for reference, the U. S. equivalent is shown.

Diameter in mm.	Metric/U.S.
0.65 x 100	65 / 9
0.9 x 100	90 / 14
1.1 x 100	110 / 18

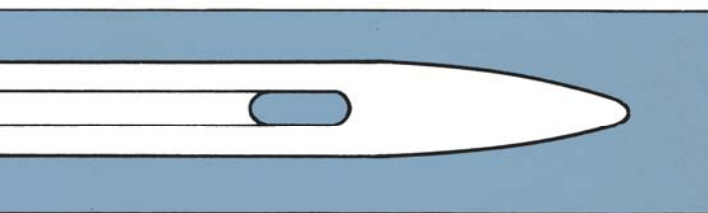
Needles are available in a variety of sizes, ranging from size 60 to 120.

In general, various needle sizes are designed for different fabric weights as shown below:

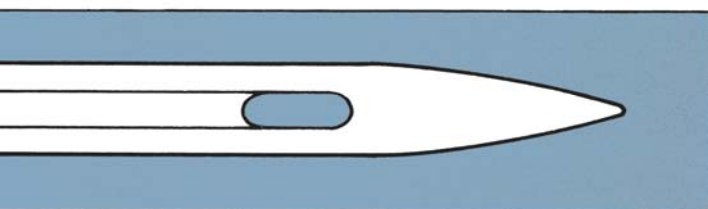
Lightweight Fabrics			Mediumweight Fabrics		Heavyweight Fabrics		
60	65	70	80	90	100	110	120
7	9	10	12	14	16	18	20



1. The universal ballpoint needle (*705H*) has a slightly rounded tip; therefore, the needle separates the threads of the fabric. It does not pierce the individual threads which may damage the fabric, resulting in runs or snags. The 705H needle point is the most versatile as it is suitable for knit or woven fabric and is available in sizes 60-120.



2. A needle with a much more rounded tip is a medium ballpoint (*705HSUK*). Bulky knits, elastic type fabrics consisting of spandex fibers are sewn using this needle. This needlepoint pushes the elastic threads aside and does not perforate them; therefore, this needle also prevents fabric damage. 705H SUK is available in sizes 80, 90 & 100.



3. Sewing a tight or coarsely woven fabric with a ballpoint needle may result in a slight zig zag appearance as the needle deflects off the threads instead of piercing them. The acute round point (*705HJ*) has a sharper point which pierces the threads of the fabric, resulting in a uniform, straight stitch. This needle is designed to be used on a coarsely woven fabric and is available in sizes 90 and 100.

For natural leathers or synthetic imitations, a wedge shape cutting point (705H-LL) is most suitable. This point pierces the leather with less friction than other needle points. This cutting point for leather is available in sizes 80, 90 and 100.

The slotted needles designed for easy threading. These needles are ideal for persons with impaired vision and are available in sizes 90 and 100.

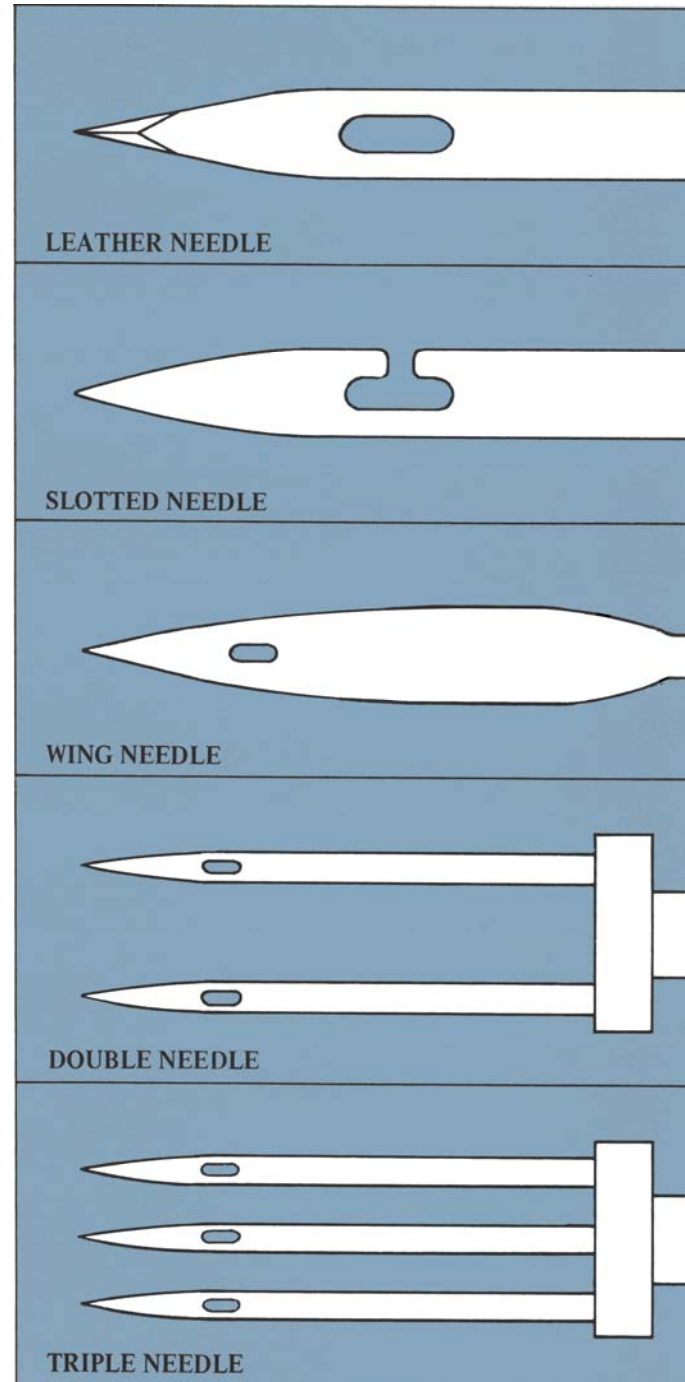
The wing needle produces a hemstitch effect. It is suitable for zig zagging and pattern stitching. This needle should be used on woven fabric as the needle wing penetrates the fabric, creating large holes which remain in the fabric. The Wing needle is available in size 100.

Double needles consist of two needles mounted by a plastic bridge to a single shank. These needles are ideal for pintucks with the raised seam foot and with one or two colors of thread for decorative stitching. The selection of twill needles includes sizes 70, 80 and 90, and also different distances between the needle points are available. Care should be taken when setting the stitch width as too wide a zig zag may result in broken needles.

Needle Point Distance	Zig Zag Width
1.8 mm	2.0 - 2.5
2.0 mm	2.0
2.5 mm	1.5 - 2.0
3.0 mm	1.5
4.0 mm	0

Triple needles are constructed with the same bridge as the twin needles. These needles are commonly used for multicolored straight seams. Stitch width should be reduced to eliminate needle breakage.

The needle should be changed often. Knit fabrics, interfacings, fabric sizing, napped fabrics and synthetics contribute to rapid dulling of the needle. It is highly recommended that the needle be changed approximately every two garments depending on the fabric type.



Needle and Thread Chart

Weight	Fabrics	English System Cotton thread	Synthetic Thread Equivalent	Embroidery	Needle Size Number Metric	Needle Points recommended
Lightweight	Nylon Tricot for lingerie, batiste, chiffon, dress weight Tricot, dotted Swiss net, organdy, sheer crepe, voile	60 extra fine 50	* *	50 50	65 70 70	705H Universal ball point
Light Medium Weight	Challis, crepe, gingham, satin, jersey, percale, taffeta, wool crepe, cotton blends, seersucker	50	*	30	80 90	705H Universal Ball Point
Medium heavy weight	Bonded fabrics, coating, velvet, denim, doubleknit, drapery fabric, felt, fleece, gabardine, leather, leather look, quilted fabric, linen, terry cloth, corduroy	50	*	30 20	80 90 100	705H Universal Ball Point
Medium to Heavy weight	Awning cloth, duck, fake fur Elastic, spandex rubber, sweater knits	50 50	* *	20	90 100 90 80	705 H J Acute Round Point 705H SUK Medium Ballpoint
Heavy weight	Denim, leather look, canvas, sailcloth, upholstery fabric Leathers and synthetic imitations	50 40 30 50 40 30	* * * * * *		80 90 100 90 100	705 H J Acute Round Point 705H LL Wedge Point for Leather

*Synthetic Thread equivalent to English size.

COMMON FAULTS AND SUGGESTED CORRECTIONS

Listed are faults most often responsible for poor sewing performance.

SKIPPED STITCHES

1. Incorrect needle system – use 705H.
2. Needle point incorrect – refer to types of Needles
3. Needle size incorrect – refer to Needle and Thread Chart.
4. Needle dull or blunt – change
5. Thread of poor quality
6. Thread too large for needle size – refer to Needle and Thread Chart.
7. Incorrect threading – refer to Operating Manual.
8. Incorrect presser foot – refer to Operating Manual.
9. Needle plate damage; needle slot too large – change plate.
10. Presser foot pressure incorrect.

PUCKERING OF SEAMS

1. Needle point incorrect – refer to Types of Needles.
2. Needle size incorrect – refer to Needle and Thread chart.
3. Needle dull or blunt – change.
4. Thread of poor quality or uneven thickness.
5. Thread sizes too large for needle or material – refer to Needle and Thread Chart.
6. Upper and lower thread of different size.
7. Upper and lower thread not of same fiber.
8. Incorrect threading - refer to Operating Manual.

9. Bobbin wound too full.
10. Needle plate slot is damaged; has burred edge – change.
11. Incorrect presser foot.
12. Presser foot pressure incorrect.

THREAD BREAKING OR FRAYING

1. Incorrect threading – refer to Operating Manual
2. Thread is of poor quality – coarse or uneven.
3. Incorrect needle system – use 705H.
4. Needle size incorrect.
5. Thread too large for needle – refer to Needle and Thread Chart.
6. Needle plate slot damaged – change.
7. Thread is entangled on spool pin.
8. Bobbin overfilled.

NEEDLE BREAKAGE

1. Needle incorrectly inserted.
2. Incorrect needle system – use 705H.
3. Needle size incorrect – refer to Needle and Thread Chart.
4. Thread of poor quality, may be knotted.
5. Bobbin overfilled.
6. Tension too tight on upper thread.
7. Thread is entangled on the spool pin. Not allowing machine to feed; sewer may be pulling fabric.