

Product information

The Domestic Sewing Machine Needle

A contribution of the SCHMETZ SERVICEHOUSE

In the last years, a rapid change took place on the material and accessories market. The fabrics noticeably changed in material, composition, structure and therefore also the requirements for their handling changed. All industries connected with the textile processing reacted on that and adapted their products to the new requirements. Only with the right combination of all components a perfect sewing result can be achieved. To provide assistance for the correct needle choice, the company SCHMETZ published the booklet „Needles for Household Sewing Machines“ and the leaflet „Needle-ABC“ as consumer information for interested users.

The development of the needle through history

The needle was one of humankind's first tools. Over the centuries it developed from a simple craft item to the precision tool for sewing machines. The most ancient sewing needles (28,000 BC) had a split end which gripped the thread to be sewn (often raffia, gut or sinew). Needles from later than 17,500 BC already had the two characteristic features of the hand sewing needle today, the eye at one end and the tapered point at the other end.

The needle in modern times

The invention of the sewing machine gave rise to the development of the sewing machine needle. From 1755, the most different needle forms were developed, which partly are still in use until today. Around 1800, B. Krems (from Mayen, Germany) used, for the first time, a needle which had the eye moved close to the point. This eye-point needle paved the way for the mechanisation of sewing world-wide. Through permanent further improvement of the simple hand sewing needle, the precision tool sewing machine needle was developed. In the year 1953, the metric size designation was determined, for which the abbreviation NM was introduced. This „number metric“ indicates the diameter of the needle blade in hundredths of a millimetre measured above the scarf or the short groove, but not at any reinforced part of the blade. A sewing machine needle with a blade diameter of 0.80 mm therefore corresponds to NM 80.

Description and manufacture of the sewing machine needle

A sewing machine needle consists of the elements

- Shank: There are round shanks and flat shanks.
- Blade with groove: The groove guides the needle thread to the eye. The diameter of the used thread should have maximum 40% of the needle's thickness.
- Scarf: It supports the hook to pick up the sewing thread loop.
- Point and eye: The point shape is relevant for the application of the sewing machine needle.

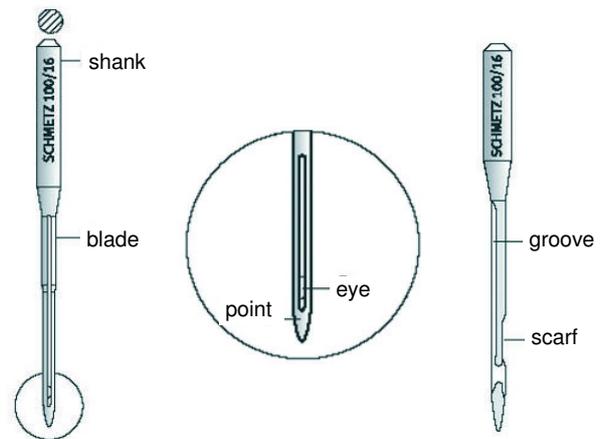


Fig. 1: Description of a SCHMETZ sewing machine needle

A SCHMETZ sewing machine needle passes through up to 35 stages of production. After each production stage there is a semi- or fully automated check.

The single processes are permanently optimised by the use of innovative technologies.

Needle systems for household sewing machines

The most used needle system for household machines is 130/705 H (H=Hohlkehle in German, means with scarf). All needles of system 130/705 H have a flattened shank for perfect positioning of the needle in the needle bar and in relation to the point of the hook. The special needles differ in size, point shape and eye. The groove is adapted to the needle size and guarantees the friction free guidance of the thread through the material. The scarf supports the hook to pick up the needle thread loop correctly.

The selection of the correct needle size and point shape has a big influence on the sewing result. The choice of the optimum needle depends on the material to be sewn, its thickness and the intended sewing process (sewing, topstitching, embroidering, etc.). The following gives an overview about the most important needle systems:

UNIVERSAL NEEDLE, 130/705 H

NM 60, 65, 70, 75, 80, 90, 100, 110, 120



The UNIVERSAL NEEDLE has a slightly rounded point and is suitable for trouble-free sewing of most materials.

Fig. 2: UNIVERSAL NEEDLE

EMBROIDERY NEEDLE, 130/705 H-E

NM 75, 90

The EMBROIDERY NEEDLE is suitable for the problem-free embroidering with the sewing machine. It has a large eye for thicker threads, special effect or metallic embroidery threads (e. g. Lurex threads). It also has a small ball point.

Larger eye and larger cross-section of the groove: For easier threading as well as gentle thread passage through eye and groove => Protective effect on embroidery thread: Prevents thread breakage.

Optimised scarf: The special construction of the transition from the eye to the scarf reduces the risk of skip stitches.

Small ball point: Avoids damages of the (already embroidered) embroidery thread and the fabric.

Application: Embroidering with embroidery threads and effect threads using decorative techniques as well as the embroidering with the embroidery unit.



Fig. 3: EMBROIDERY NEEDLE



Fig. 4: Detail of Bavarian jacket

METALLIC-NEEDLE, 130 MET (MET=Metallic)

NM 80, 90, 100



Fig. 5: METALLIC NEEDLE

Developed specially for metal effect thread, with very long eye (2 mm in all needle sizes) in relation to the needle thickness. The eye is even longer than in needle system 130/705 H-E (for embroidering) and remains the same in all needle sizes. The longer eye and the special groove allows the thread to glide easily and gently through the needle (and therefore prevent thread breakage).

Tip: Slow down sewing speed when using metallic threads or Lurex effect threads.

TOPSTITCH NEEDLE, 130N

= 130 MET

NM 80, 90, 100

The longer eye and the special groove offer space for thicker topstitching threads or for the use of two all-purpose sewing

threads. These needles are also used for machine embroidery or free motion embroidery in problematic materials.

MICROTEX NEEDLE, 130/705 H-M

NM 60, 70, 80, 90



With very slim, acute point for easier piercing of very fine or densely woven fabrics. The stitch hole is smaller and seam puckering is reduced. Achieves precise and straight stitches (e. g. topstitching of edges) due to the point shape.

Application: Very fine or densely woven fabrics like silk, woven microfibre, foil.

Fig. 6: MICROTEX NEEDLE

JEANS NEEDLE, 130/705 H-J

NM 70, 80, 90, 100, 110



Fig. 7: JEANS NEEDLE

With slim, acute point for easier penetration of thick fabrics and with reinforced blade, which causes less deflection of the needle. The special shape of the scarf reduces the risk of skip stitches.

Application: For jeans (denim) and similar solid fabrics, workwear, artificial leather, waxed cloth vinyl.

Tip: If many layers of washed jeans material have to be sewn, the use of the correct needle size is important. Additionally, knocking of the material with a hammer in the intended seam line helps. Wrap the hammer with fabric so that it does not damage the material to be sewn.

QUILTING NEEDLE, 130/705 H-Q

NM 75, 90



Fig. 8: QUILTING NEEDLE

With slim, acute point, which is slightly rounded in order to penetrate thick layers of material easier during quilting by machine. Achieves accurate seams in quilting where many seams frequently cross each other and avoids damage in sensitive and often expensive materials used in patchwork.

Application: Patchwork and quilting

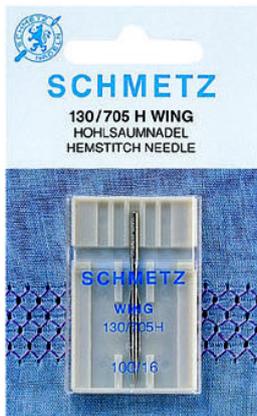
EMBROIDERY SPRING NEEDLE, 130/705 H SPR
NM 80



An EMBROIDERY NEEDLE with a spring around the needle. The spring assumes the function of the presser foot, i.e. the material is pressed down to avoid the fluttering of the material. The EMBROIDERY SPRING NEEDLE is used for embroidering in a frame without a presser foot. This allows individual patterns and free motion during sewing.

Fig. 9: EMBROIDERY SPRING NEEDLE

HEMSTITCH NEEDLE, 130/705 H WING
NM 100, 120



With a “wing” on each side of the needle blade which pushes the fabric aside. This needle is used for hemstitching in loosely woven fabrics like cambric and linen.

Application: for decorative seams and hemstitching

Fig. 10: HEMSTITCH NEEDLE

TWIN and TRIPLE NEEDLES

(only for machines with transversal hook)

The properties of these needles are equivalent to the respective single needles.

Application: Pintucks, single and multicoloured seams, hems



Fig. 11: left: DOUBLE HEMSTITCH NEEDLE, right: TRIPLE NEEDLE

Patchwork and Quilting

As a balance to the modern hectic society the employment with old craftsmanship traditions revives more and more and thus helps to preserve the techniques and knowledge, to develop and to reanimate them. The creation of patchwork and quilts enjoys great popularity. Today, patchwork and quilting can be done

completely by hand as well as with the sewing machine or even both together.

The use of a sewing machine places special demands on the quality and properties of the materials. Only if material, sewing thread, interfacing and the needle are optimally adjusted to each other, the creative idea will be converted into outstanding results. If only one of the components is changed, the interaction between the individual parts changes, too, and influences the total result. So the sewing thread, for instance, should be of good quality, it should not show any unevenness or knots and it should glide through the eye without wear of friction. Never use hand quilting threads on the sewing machine! However, the selection of the correct needle plays a very decisive role for an optimal sewing result.

The co-operation of fabric and correct needle

The material with its different colours and qualities is the starting point of the work. Usually, a stable, fine cotton fabric is used for a quilt. A UNIVERSAL NEEDLE (130/705 H) of size NM 70 and NM 80 is appropriate to it. If the fabric is mixed with fibres of unknown origin, a MICROTUX NEEDLE (130/705 H-M) of size NM 80 or NM 90 should be preferred. Due to its especially slim point, it is possible to sew silk and materials of the most different synthetic blends without seam puckering. Select the needle size as small as possible so that the stitch hole is completely filled by the sewing thread.

The right choice to sew or quilt difficult seams with a lot of seam allowances is the QUILTING NEEDLE (130/705 H-Q), which was developed especially for quilting. The very slim, slightly rounded point allows the needle to glide through all material layers easily without damaging the material. If there are still problems, the TOPSTITCH NEEDLE (130N) is an alternative. The needle thread is guided in a flat angle through the longer eye and enables a correct interlocking of the needle and bobbin thread through all layers of material. For decorative seams with metallic threads, the METALLIC NEEDLE (130 MET) is especially suitable. Metallic threads require a very careful handling, because they place high demands on the manufacturing process. The 2 mm long eye of the METALLIC NEEDLE (130 MET) permits a trouble-free guidance of the metallic thread.

In order to carry out a successful work, the needle has to be replaced regularly. Only a damage-free needle point permits to sew in professional quality and avoids thread breakage. In the future, pay more attention to your needle – the high quality and effect of your work will be visible.

Fig. 12: Detail



Further information available at:

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