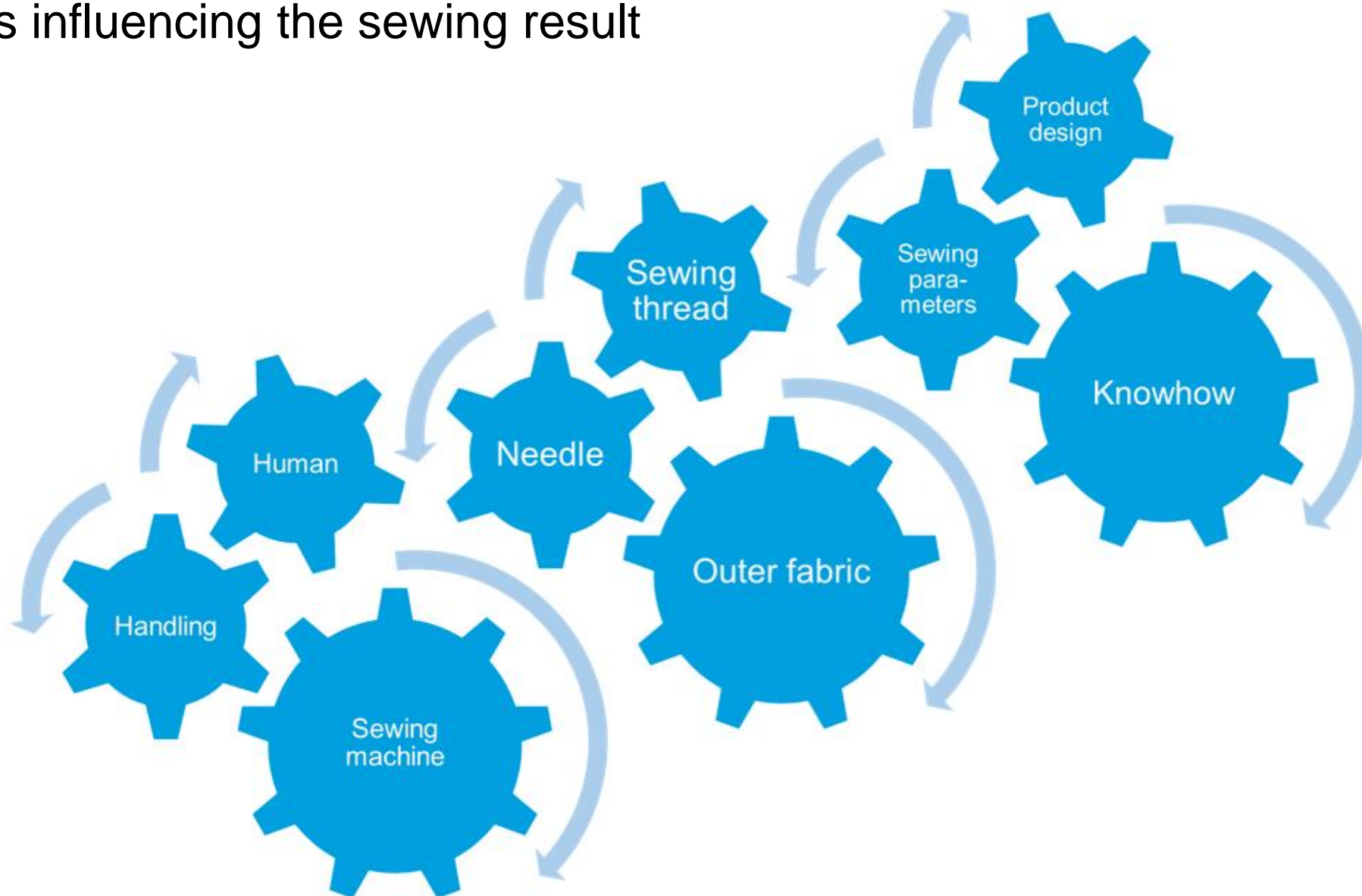




Basic information on sewing threads.

Mettler[®]
Thread.Colour.Imagination.

Factors influencing the sewing result



Factors influencing the sewing result

In addition to the right choice of sewing thread, correct handling is also decisive for the final seam quality: **the interaction must be correct!**

Examples of an incorrect interaction:

- The needle is too small for the thread
- Poor fabric quality (fabric damage)
- Wrong machine setup
- Poor machine maintenance

Not all threads are the same

The quality of the sewing or embroidery thread plays a crucial role with regard to the seam quality.

Depending on the raw materials selected as well as the defined production methods and parameters, sewing and embroidery threads develop different processing and functional properties, and therefore different quality levels.



Raw materials

Depending on their source, textile fibres are classified either as natural fibres or as industrially manufactured chemical fibres.

Based on the special properties of synthetic fibres, they are perfectly suitable as sewing threads. Moreover, also in terms of sewability, they offer a more secure sewing performance during industrial production processes.

In all branches of the textile industry, polyester fibres have become the most produced fibres.

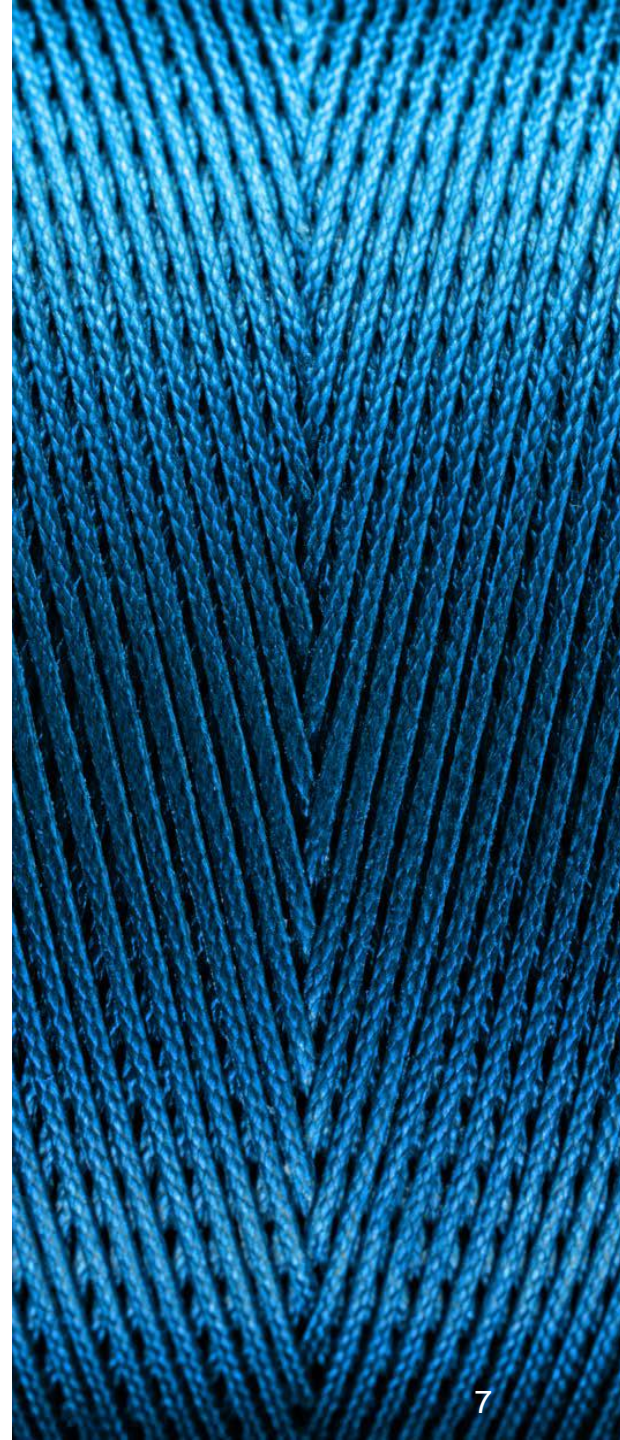


Raw material comparison

	NATURAL FIBRES	CHEMICAL FIBRES
Raw material	Cotton	Polyester
Appearance	matt gloss	Individually possible via filament profile, fibre/staple length etc.
Breaking strength	-	+
Elongation	-	+
Abrasion resistance	-	+
Dyeability	++	+ (High pressure dyeing: 4 bar, 135°C)
Colour fastness	-	++
Light fastness	-	++
Melting point	approx. 320°C (Self-ignition temperature)	approx. 256°C
Resistance to chemicals	-	Acid resistance is okay

Sewing thread construction

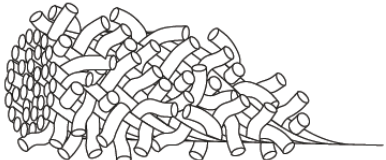
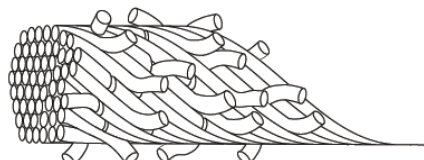
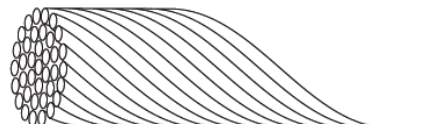





- Construction type
- Twist
- Ply
- Cord



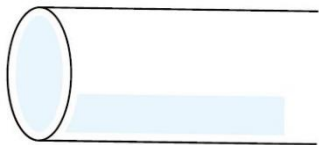
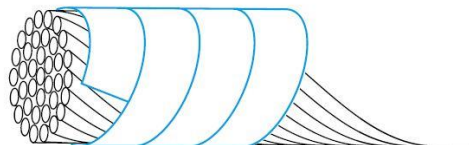
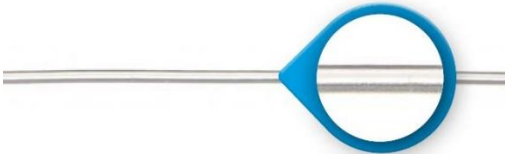

Construction type

- The construction type is defined based on the different processing methods of the fibres and filaments (schappe or cut staple spuns, smooth continuous filaments, monofilaments, texturized filaments) and their combination.
- It is important to point out that the construction types are described based on the structure of a single yarn. In general, however, a finished sewing thread consists of two or multiple single yarns, which are twisted together.

Construction type

	Spun thread	Core spun thread	Continuous filament	Continuous filament, texturised
Construction				
Appearance	textile, matt, very hairy	textile, matt, light hairy	smooth, glossy	open, bulgy
				
Breaking strength	-	+	++	-
Elasticity	+	+	++	+++
Abrasion resistance	-	+	++	-
Mettler products	SILK-FINISH COTTON, AMANDA	SERALON®, EXTRA STRONG, DENIM DOC, SERACOR, BOBBINETTE	POLY SHEEN®, POLY GLOW, SERALENE	SERAFLOCK

Construction type

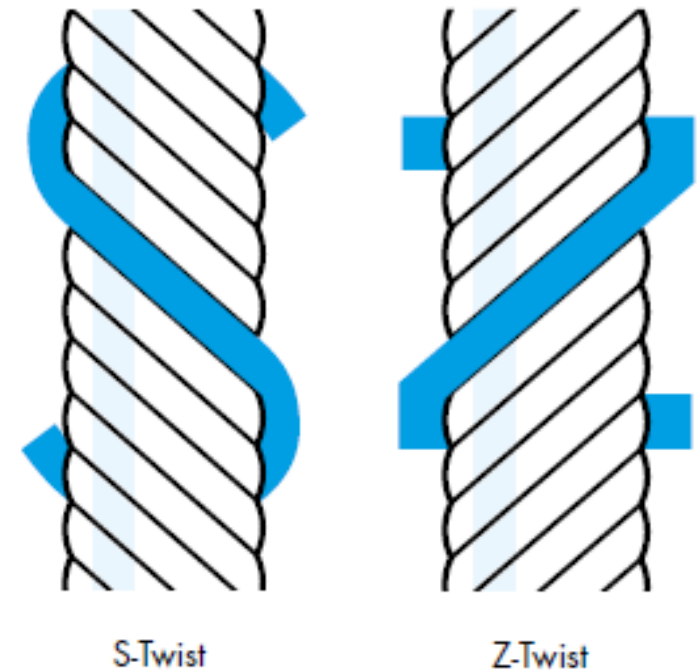
	Monofilament	Wrapped yarn
Construction		
Appearance	hardly visible, stiff	decorative, metallic glossy
		
Breaking strength	-	-
Elasticity	+	+
Abrasion resistance	-	-
Mettler products	TRANSFIL	METALLIC

Overview Mettler products

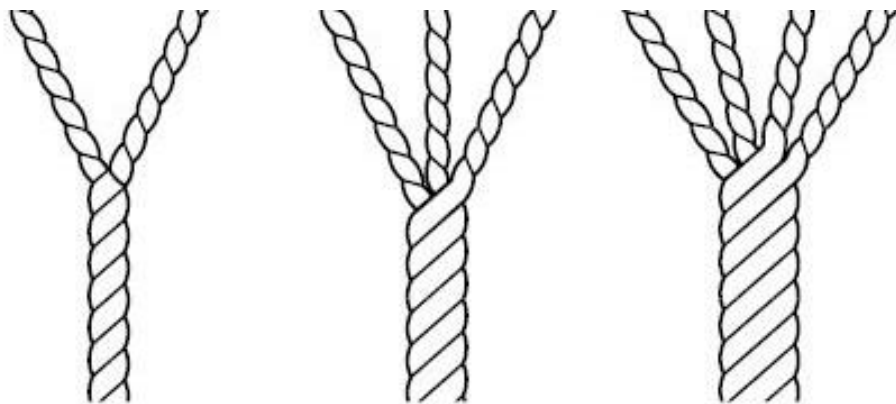
Raw material	Construction					
	Spun thread	Core spun thread	Monofilament	Continuous filament	Continuous filament, texturised	Wrapped yarn
Cotton	SILK-FINISH COTTON					
Polyester		SERALON®, METROSENE®, EXTRA STRONG, SERACOR, BOBBINETTE		POLY SHEEN®, SERALENE	SERAFLOCK	
Polyamide			TRANSFIL			
Silk	AMANDA					
Combinations		DENIM DOC		POLY GLOW		METALLIC

Twist

- There are two distinct twist directions that may be simply referred to by the letters S and Z.
- Depending on the twist direction, the centre stroke of each letter coincides with the diagonal twist of the yarn or thread.
- Single yarns are usually twisted in the S-direction while threads twist in the Z-direction.
- The twist level is of utmost importance for guaranteeing an optimal sewability and thread performance. Threads with a twist level which is too low display an “open” character. This has a direct adverse effect on the sewing performance.

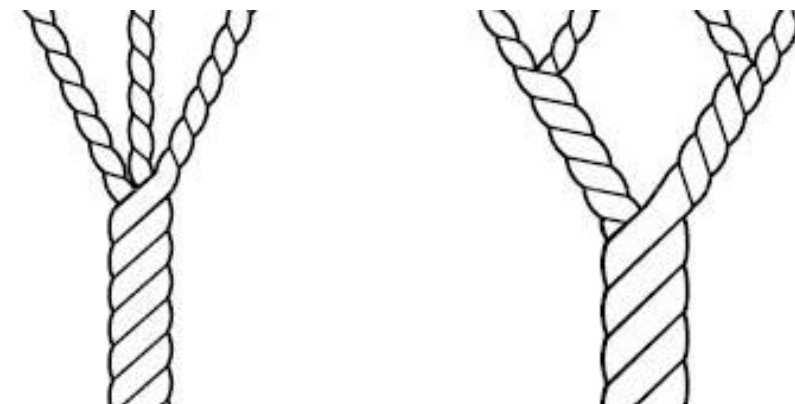


Ply and cord



The ply identifies how many single yarns make up a thread.

Most sewing threads are 2- or 3-ply constructions, i.e. they consist of 2 or 3 single yarns.



Practically all commonly used sewing threads are one-level or direct threads.

This means that the thread consists of two, three or seldom four yarns and that it has been “directly” made from these yarns.

In contrast, multi-level or corded threads are made of more than one thread. These corded threads, however, are rarely used nowadays and only where coarser threads are to be applied.

Quality criteria of sewing threads

- Thread size (linear density)
- Strength (maximum tensile strength)
- Elongation (elasticity)
- Yarn- and thread-twist (twists per m)
- Thread consistency
- Abrasion resistance



Thread size



The linear densities / numbering systems of threads may vary between raw materials and countries even today.

This can cause difficulties in comparing linear densities.

In order to be able to compare thread sizes more easily, one should refer to the linear density specification in Nm (number metric).

For Mettler products, the linear density in Nm can be found in the brochures and colour cards as well as on the website.

The higher the Nm, the finer the thread!

Strenght



The sewing thread's strength is a decisive factor for seam strength. Sewing threads with low strength are prone to break during the sewing operation.

The strength of threads is usually understood to be the maximum tensile strength (measured in cN). The maximum tensile strength is the maximum linear tensile strength a thread can tolerate before it breaks.

Depending on the raw material, the sewing thread type and the linear density, threads can have very diverse levels of strength. Cotton threads have a lower strength than polyester threads due to the raw material. Texturised continuous filament threads or spun threads have a lower strength than core spun threads or continuous filament threads due to their construction.

Elongation



The elongation of sewing threads has a direct effect on sewability and seam elasticity. Therefore, this quality feature is often in focus of attention.

The elongation is often expressed as maximum tensile elongation in percentage. The standard describes the maximum tensile elongation as the change in length of a sewing thread until it breaks or tears, which is caused by the tensile strength lengthwise (in relation to its original length).

Cotton threads naturally have a lower elongation compared to synthetic threads.

Thread Consistency



The thread consistency has a direct influence on the sewing performance.

Anyone who has ever bought cheap thread and taken a closer look at it could certainly see that this thread has irregularities.

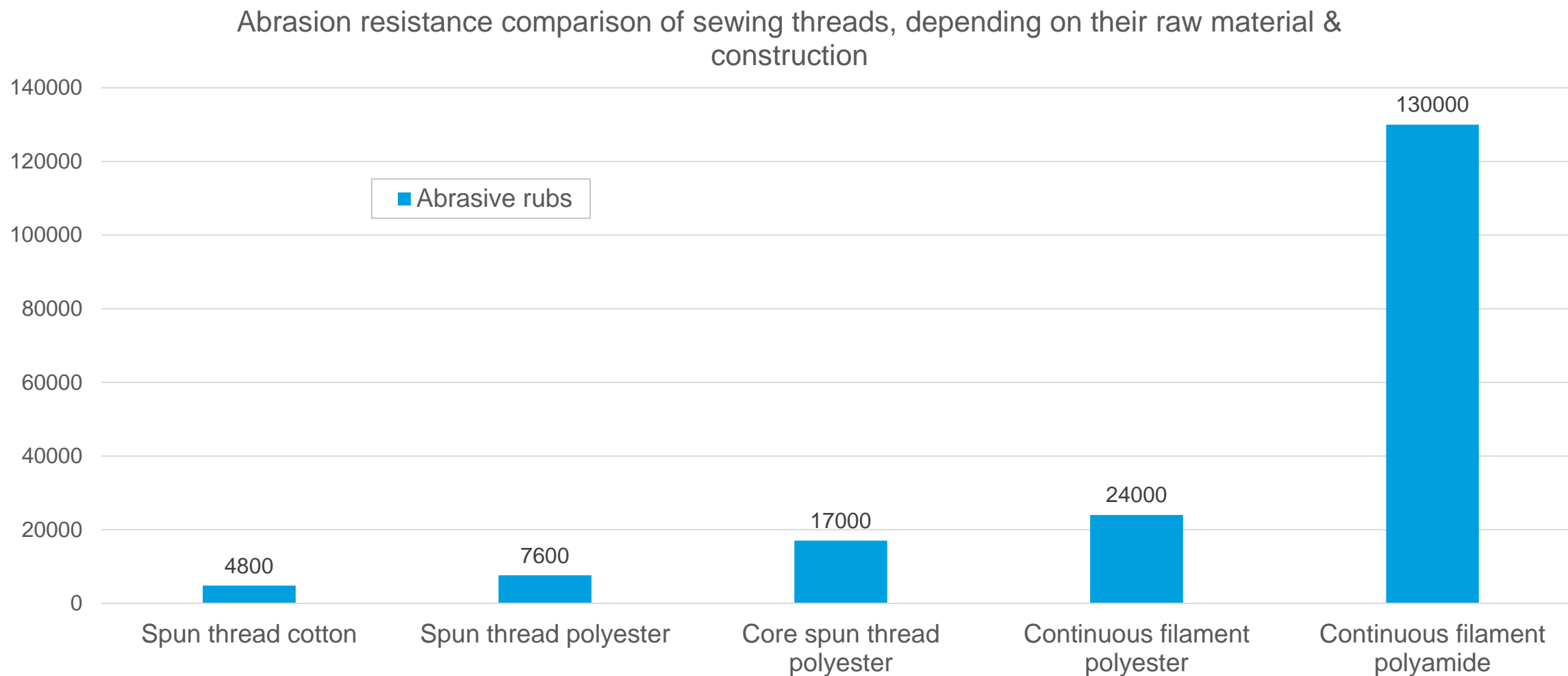
These are deviations from the specified diameter of the thread (thick and thin places).

Abrasion Resistance

- The abrasion resistance refers to the sewing or embroidery thread's resistance to abrasion assessed based on the visible changes in the appearance of the sewing thread up to the point where it is completely destroyed.
- The abrasion resistance is measured through abrasive rubs that are necessary to destroy the thread.
- The resistance to abrasion is one of the most important characteristics when evaluating the performance behaviour of the sewing thread in the seam.



Abrasion resistance comparison



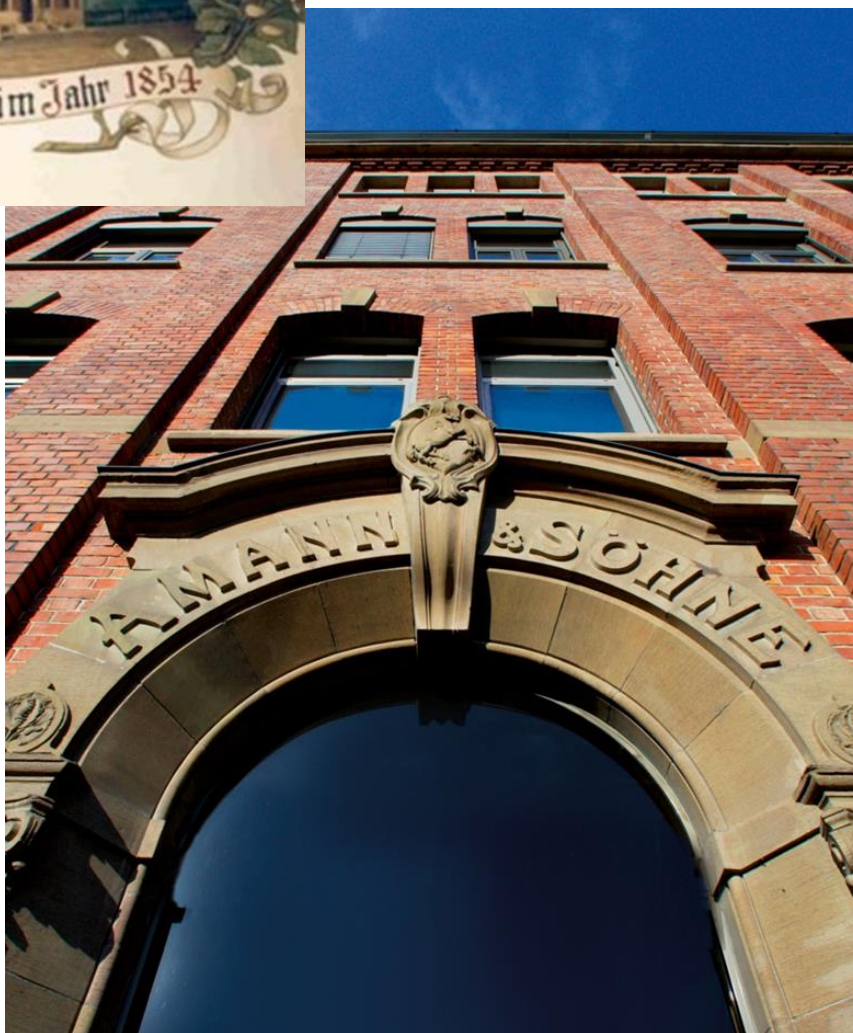
Storage recommendations

In order to ensure the high quality of our sewing and embroidery threads, we recommend a cool, dry and dark storage

- well protected against dirt,
- protected against direct UV light exposure,
- protected from high humidity,
- an ambient temperature not higher than 25°C

In order to avoid long storage times, it is recommended to use the threads according to the "first in, first out" principle. Compliance with the storage conditions mentioned above allows for long-term use of the sewing threads.

AMANN Group – The company behind Mettler



- An internationally leading producer of high-quality sewing and embroidery threads for the industrial as well as the trade sector (Mettler)
- Application areas in the industrial field:
 - Apparel
 - Shoes & Accessories
 - Embroidery
 - Automotive
 - Home Interior
 - Techtext
- Founded in 1854 in Bönningheim, Germany
- More than 2,000 employees worldwide and an annual turnover of approx. € 200 million
- Part of Hanns A. Pielenz Foundation
- First sewing and embroidery thread producer worldwide participating in Greenpeace Detox campaign



About Mettler

- The strong, international consumer brand of AMANN Group
- Target customer group: wholesale and retail
- Founded in 1883 by E. Mettler-Müller in Rorschach, Switzerland
- Since 1988 part of AMANN Group
- Product range: high-quality thread for Sewing, Quilting, Embroidery and Overlocking
- Mettler stands for „Thread. Colour. Imagination.“
- Global presence (Europe, North America, Asia, Africa and Australia) via subsidiaries or distribution partners



The Assortment

- Mettler's product range offers everything the creative needleworker needs for



Sewing



Quilting



Embroidery



Overlocking

- These specialist threads are available in a huge range of colours, surface finishes, looks and effects
- The product range is completed by attractive thread gift sets
- Products are manufactured according to the highest quality standards due to the demanding industrial requirements



SERALON® – Universal thread

- 100% Polyester
- Up to 435 colours
- Recommended needle size Nm 80-90
- Six lengths:
 - 50m, 100m, 200m, 274m, 500m, 1000m
- Suitable for all fabrics (e.g. cotton, synthetics, mixed fabrics, linen and silk) and seams
- High tensile strength and excellent seam elasticity
- Ideal smoothness



	Sewing	Quilting	Embroidery	Overlocking
No. 100				
No. 30				



EXTRA STRONG – Extra durable

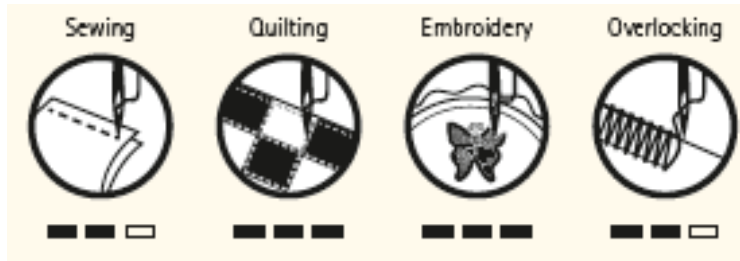
- 100% Polyester
- Up to 72 colours
- Recommended needle size Nm 90-120
- Three lengths:
 - 30m, 115m, 125m
- For durable seams
- Extremely break and abrasion resistant
- For both hand and machine sewing
- For decorative topstitching seams



POLY SHEEN® – Embroidery and decorative seams



- 100% Polyester
- Up to 435 solid colours & 42 multicolour
- Recommended needle size Nm 70-80
- Two lengths:
 - 200m, 800m
- Through its trilobal Polyester, POLY SHEEN® has a beautiful shine
- Very break resistant and excellent embroidery and sewing qualities



METALLIC – Effect thread



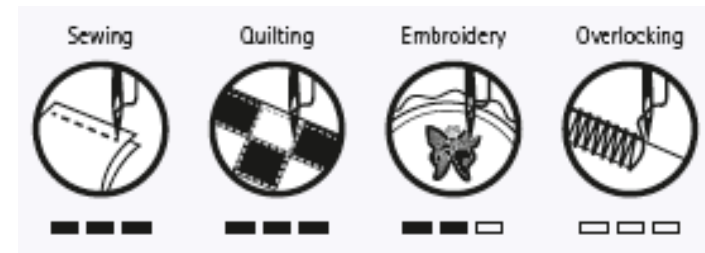
- 55% Polyester 45% Polyamide
- Up to 15 colours
- Recommended needle size Nm 70-80
- Two lengths:
 - 100m, 600m
- METALLIC is the thread for special effects on fashionable embroideries and badges
- It gives creative works an intense interplay of light and shadow as well as a long-lasting 3D effect



SILK-FINISH COTTON – Mercerized cotton



- 100% mercerized cotton
- Four different strengths:
 - 28, 40, 50, 60
- High tensile strength as well as reduced shrinkage and high heat resistance due to the mercerization process
- SFC 50 is the perfect sewing and quilting thread for your finest cotton creations
 - Three solid colour lengths: 150m, 500m, 1829m
 - Three multicolour lengths: 100m, 457m, 1372m
 - Larger spools for longarm-quilting





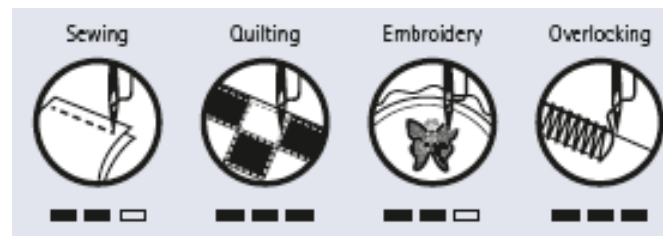
SILK-FINISH COTTON – Mercerized cotton

- SFC 28 is excellent for lockstitching, hand quilting and hand embroidery
 - Two lengths: 80m, 245m
 - For decorative seams, ornamental stitching and applications as well as for buttonholes or for jeans hemlines
- SFC 40 is excellently suited for patchworking and quilting
 - Three lengths: 150m, 457m, 1463m
 - For beautiful decorative effects
- SFC 60 is the perfect piecing and quilting thread
 - Three lengths: 200m, 800m, 2743m
 - For fine as well as thicker embroidery designs and decorative seams
 - Larger spools for longarm-quitting



SERACOR – Overlocking

- 100% Polyester
- Up to 50 colours
- Recommended needle size Nm 70-80
- Two lengths:
 - 1000m, 2500m (Longarm)
- The all-rounder of overlock threads
- Outstanding seam elasticity combined with a filigree look
- Sews evenly and gives absolutely flat, clean seams on all fabrics
- Unsurpassed and trouble-free sewability, even on the most sophisticated multi-function overlock machines



Thread Sets

- Three different sizes in SERALON[®], POLY SHEEN[®] and SILK-FINISH COTTON:
 - 4 spools (Seralon & Denim Doc)
 - 8 spools
 - 18 spools
 - 28 spools
- Seasonal sets in SERALON[®] and SILK-FINISH COTTON:
 - Spring
 - Summer
 - Autumn
 - Winter
- Themed sets
 - Quilting
 - Christmas
 - And more



Thread Cases



- Available for SERALON[®], POLY SHEEN[®] and SILK-FINISH COTTON
- Contains 96 great colours
- Ideal for storing our threads
- Each compartment is marked with its colour code
- Great protection against dirt and moisture
- Puts an end to the constant search for the right thread colours

Cooperation with **BERNINA**

- Long-term, strategic partnership with mutual benefits
 - Mutual recommendation (via marketing tools)
 - Quality improvement
 - Exchange between both companies' sewing labs
 - All BERNINA machines are tested with Mettler thread
 - Market feedback
- Added-value for consumers
 - High-quality and value thread samples with new BERNINA machines – starter kits tailored to product and application
 - Joint actions (Sewing rally, Thread Cases, ...)



Sustainability

AMANN takes environmental, consumer and employee protection seriously:

- Our products consist of non-hazardous substances that pose no risk to humans and the environment
- AMANN ensures the same high quality standards in all production sites worldwide
- Eco-friendly packaging: Nearly all Mettler spools are made of 100% recyclable polystyrene

Greenpeace Detox Campaign

AMANN is the first sewing and embroidery thread producer worldwide, who takes part in Greenpeace Detox Campaign:

- “Detox Our Future” is a worldwide detoxification program
 - An expanded criteria catalogue according to Appendix 6 has been developed for the STANDARD 100 by OEKO-TEX[®] certification
 - In comparison to the current testing catalogue, Appendix 6 tightens the limit values for many substances, especially for the so-called “Detox Substances Groups”
 - Certification according to Appendix 6 is not mandatory yet
- Nearly all AMANN and hence almost all Mettler products are certified according to Appendix 6



AMANN Group – Social Responsibility

- Part of the Hanns A. Pielenz foundation
- Focus on social responsibility and financial independency
- Supports Arts, Culture, Research and Educational programs

