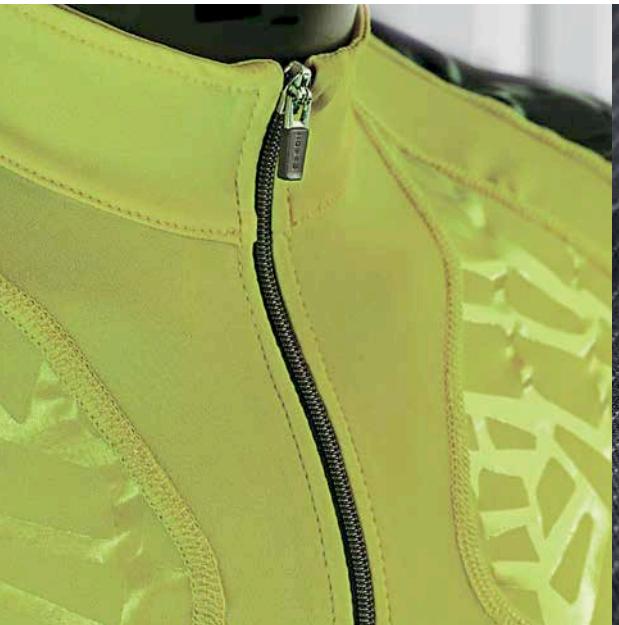
GROZ-BECKERT

Sewing

Sewing machine needles for the apparel industry



Groz-Beckert sewing machine needles for apparel

No matter if you process textiles, leather or other materials – benefit from the full potential of Groz-Beckert products for the joining of textiles. Find out first hand how tools that may appear simple at first glance can have a substantial impact on productivity, seam quality and gentle treatment of materials. Are you confronted with higher and higher machine speeds and different material and thread qualities? Rely on tried and tested technologies to secure your long-term success!

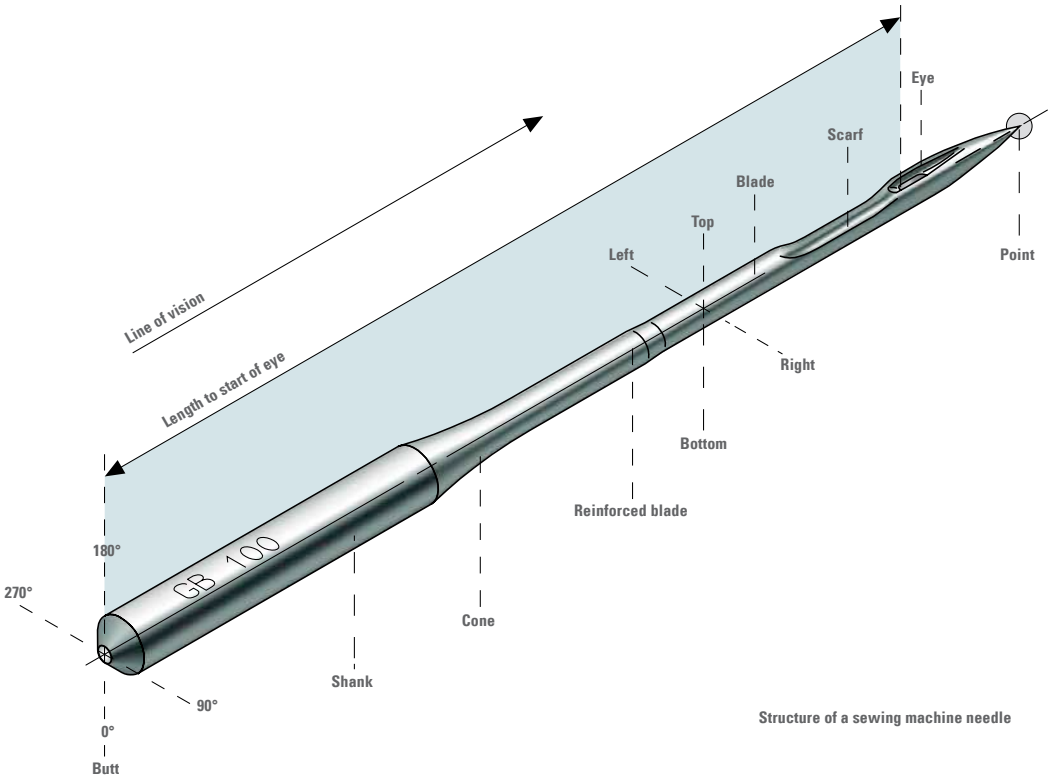
Seams have to be resilient. This was true already long ago when clothing was used simply as a protection and it still is. But now that fashion and functionality play an increasingly important role, seams have to be so much more. Today, seams have to satisfy not only practical but also esthetical requirements, even when the most sensitive materials or difficult combinations of different materials are processed. And they have to consider functional aspects. "Wearable technologies" is only another keyword that stands for diversity and increasing challenges. This gives rise to the demand for a wide range of needles capable of gentle material processing. Groz-Beckert offers the right sewing machine needle for every seam. For standard applications or special requirements –proven quality and innovative solutions by Groz-Beckert will make your garment perfect.

Contents

Focus on the sewing machine needle

To the customer portal

Sewing machine needles are the silent heroes of the industrial sewing workshop. They can hardly be seen, and are hardly heard – but they are consistently high performers. They exert a decisive influence on the design and durability of textile products, but also on productivity in the sewing process. This makes it all the more important to rely on proven quality and innovative solutions when selecting which needle brand to use.



Structure of a sewing machine needle

The most important part of a sewing machine: The needle

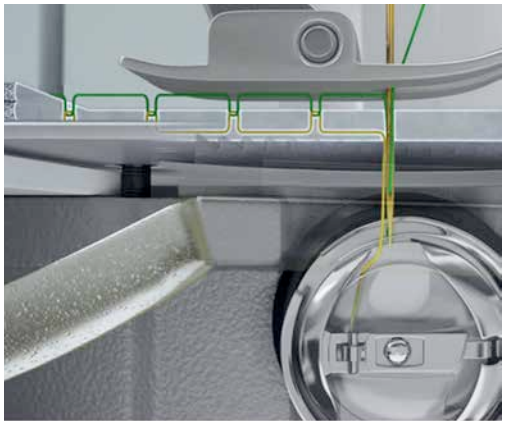
Without a needle, a sewing machine cannot operate. The task of the needle is to pierce the textile surfaces being joined, to insert the sewing thread and so join the two parts together. Stitch formation takes place in this way between the needle and looper, or rather between the needle and bobbin thread. An industrial sewing machine executes up to 10,000 stitches a minute.

This means that sewing machine needles have to be produced to an extreme degree of precision to guarantee process reliability during sewing.

Sewing machine needles come in a range of shapes and varieties, and can so be used in different sewing machines for wide-ranging applications and stitch types.

Different methods of stitch formation

Seams can be created in different ways, in other words using different stitch types. The individual stitch types differ in terms of their geometric arrangement of the threads. Examples include chainstitch, lockstitch or overlock seams. Our customer portal my.groz-beckert.com/sewing provides animated demonstrations of most types of stitch formation.



Proven quality for standard applications

Sewing machine needles have been part of the Groz-Beckert production range for over 30 years. At all times these were produced using state-of-the-art technology to an extreme standard of precision to ensure outstanding quality. Although the production range has been continuously extended and new products for new applications are permanently added, needles for standard applications still represent the majority of the product range. This is why particular attention to detail has been lavished on this standard range – starting from the use of high-grade raw materials through optimized precision tools to achieve extremely narrow production tolerances, to the use of high-quality packaging.

The standard needle for lockstitch applications: Needle system 134

The standard needle for chainstitch applications: Needle system UY 128

As standard needles reach the limit of their capability for some applications, needles capable of complying with special demands are also required. Over the following pages, read about the special application needles supplied by Groz-Beckert to ensure perfect sewing results every time.

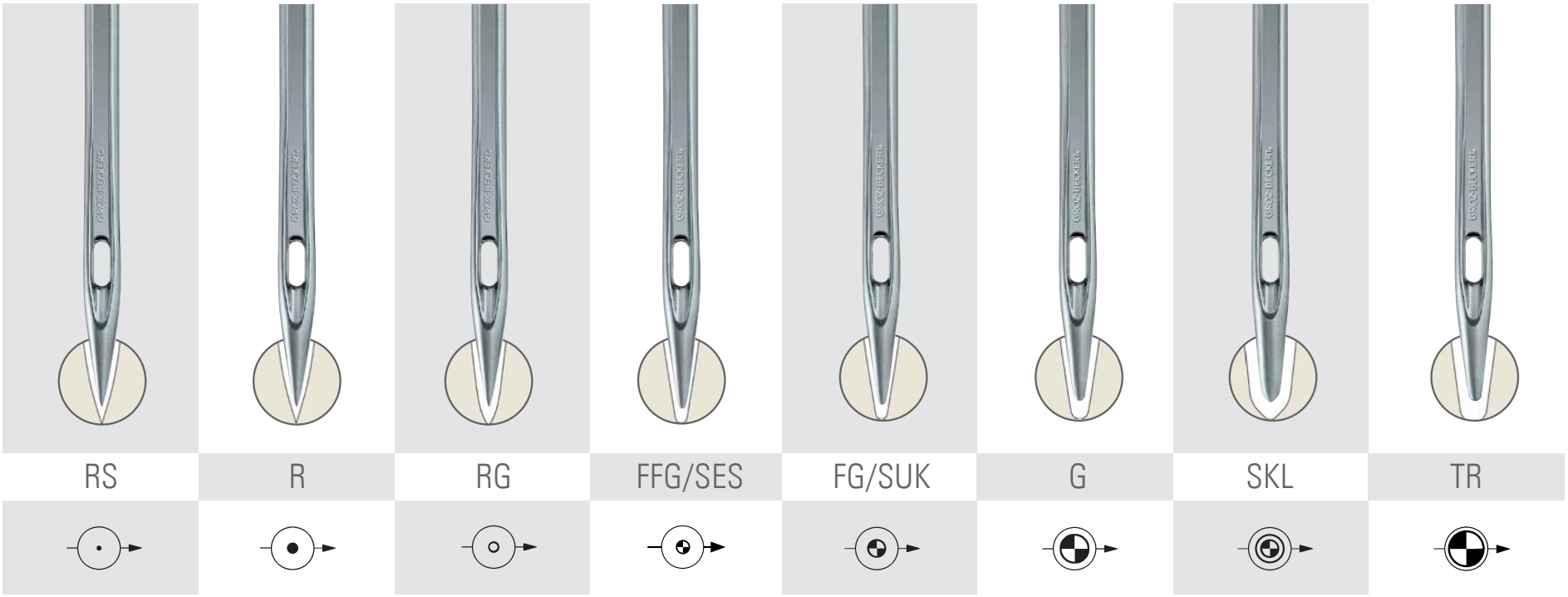
Would you have known that …

- the first sewing machine needle was invented at the beginning of the 19th century, and that its essential function and structure have remained practically unchanged to the present day?
- the current Groz-Beckert range encompasses around 3,000 different types?
- needle system 134 alone is available in 300 different variants?
- several billion sewing machine needles are consumed around the world every year?

Groz-Beckert cloth points

Cloth points – also known as round points – are used to sew fabrics that are woven, knitted or felted. Due to the "rounded" form of the point, the threads and stitches are displaced, protecting the sewing material. The selection of the right point is made depending on the textile structure, and this has a significant effect on the sewing result.

More information available in the "Cloth Points" data sheet

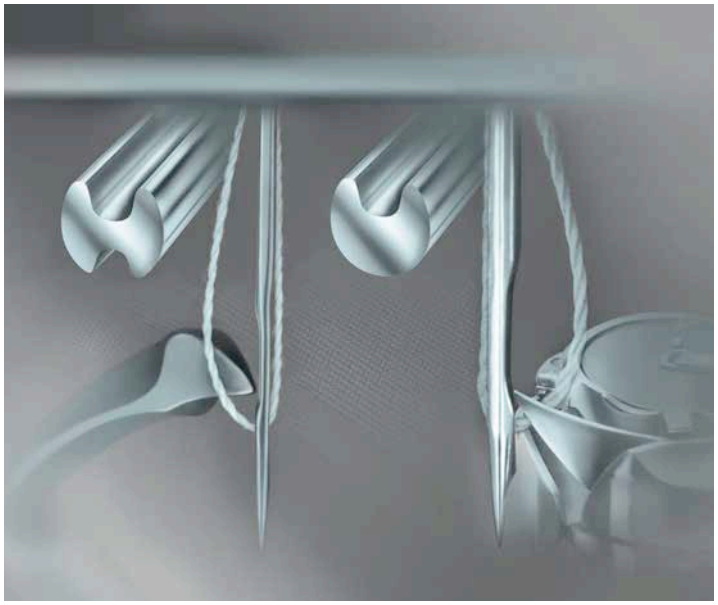


RS	R	RG	FFG/SES	FG/SUK	G	SKL	TR
Sharp round point (sensitive)	**Regular round point**	**Round point with slightly rounded tip**	**Light ball point**	**Medium ball point**	**Heavy ball point**	**Special ball point**	**Special ball point**
Standard for blind stitch and for very straight lockstitch seams in fine fabrics	Standard for lockstitch, woven fabrics, artificial leather, coated woven fabrics	Standard for chainstitch and embroidery	For all kinds of knitted fabrics and woven cotton or synthetic fabrics	For elastic or coarse structured fabrics or fabrics with rubber or elastomer content	For very coarse, highly elastic and open structured fabrics	For warp-knitted fabrics with a high elastomer content	For Schiffli embroidery in open fabric structures, cotton tulle and/or synthetic fabrics

Loop Control® –
the innovative needle geometry for the perfect loop

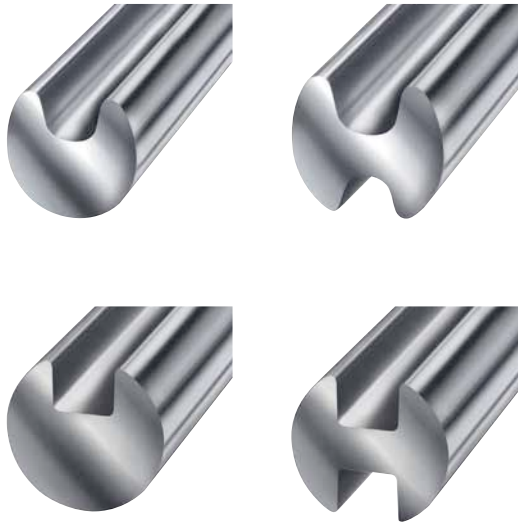
More information available in
the "Loop Control®" data sheet

Perfect loop formation provides the basis for flawless, high-quality seams. The geometry of the sewing machine needle used has a decisive impact on the results. With its unique Loop Control® needle geometry, Groz-Beckert offers a smart solution both for lock-stitch and chainstitch applications. Secure loop formation minimizes skipped stitches and ensures maximum care of the sewing thread due to the special longitudinal groove geometry.



The advantages

- Perfect loop formation
- Reduced risk of skipped stitches
- Optimum care of the thread and fabric
- High level of needle stability
- Less needle deflection
- Less needle breakage and point damage
- Improved seam appearance
- Higher process stability



Comparison: Loop Control® geometry (top row)
with conventional needle geometry (bottom row)

GEBEDUR® – needles with titanium nitride coating

In demanding sewing processes, for instance when sewing hard materials and material combinations, needle wear often occurs, particularly in the point and eye area. The special GEBEDUR® surface coating provides the needle with increased wear resistance, allowing it to withstand extreme conditions much longer.

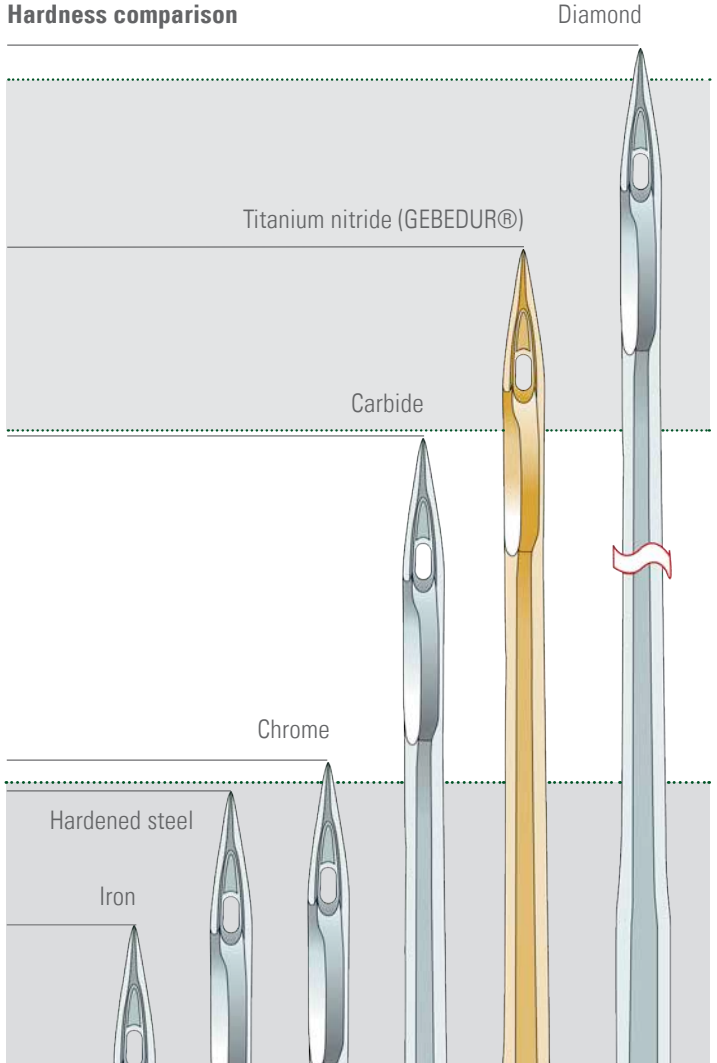
The special features

- Titanium nitride surface coating
- Higher degree of coating hardness than with standard needles

The advantages

- Higher protection against wear and damage, primarily in the point and eye area
- Consistently high standard of seam quality
- Longer service life of needles
- Increased productivity

Due to the above specified characteristics, certain special application needles such as the SAN® 5 or the SAN® 6 are coated with GEBEDUR® as standard.



Special application needle SAN® 6 – for sewing applications in the processing of jeans clothing

When processing denim or other hard fabrics, a range of problems can arise. Skipped stitches occur frequently when sewing over cross seams, and the high penetration force and associated extreme needle deflection often result in needle breakage. The SAN® 6 needle was developed to prevent these and other problems such as thread breakage and point damage.

The special features

- The reduced cross-section in the eye area reduces the penetration force.
- The tapered blade results in a significantly higher resistance to deflection than is the case in standard needles.
- The improved thread guidance in the eye and scarf area helps protect the thread and improve pick-up of the thread by the hook or looper.
- The GEBEDUR® coating protects the needle against wear and damage.

The advantages

- Reduced risk of skipped stitches
- Special protection of the fabric
- Optimum protection of the looper point
- Reduced stress on the machine
- High protection against needle wear through the use of GEBEDUR®
- Low needle consumption
- High productivity due to less machine downtime
- Reduced production costs

Special application needles SAN® 10 and SAN® 10 XS – for impressive results with ultra-fine knit and woven fabrics

More information available in the "SAN® 10 and SAN® 10 XS" data sheet

Clothing made from fine and ultra-fine fabrics is currently right in vogue. For consumers, there is practically no limit to what is available. In the field of underwear and sports apparel particularly, compatibility and wearing comfort have become just as important as elegance and aesthetic appeal. To address these different demands, the manufacture of this type of product calls for sewing machine needles capable of taking optimum care of even the finest fabrics: SAN® 10 and SAN® 10 XS special application needles.

The special features

- The blade geometry is designed for particularly gentle action, enabling practically trouble-free processing without material damage.
- The specially adapted eye geometry improves the thread sliding action and so reduces skipped stitches, thread breakage and needle breakage.
- The special shape of the blade area gives the needle greater stability, resulting in optimum care of the fabric.

The advantages

- Superior seam quality coupled with gentle fabric treatment
- Fewer skipped stitches
- Fewer needle breakages
- Allows the processing of fabrics with critical sewing properties
- Scope for using a larger size thread with the same needle thickness (large eye)
- Improved productivity

Additional benefits of SAN® 10 XS

- Extreme care of the fabric
- Ultra-small needle holes
- Processing of fabrics with extremely critical sewing properties

Superior seam quality with SAN® 10 and SAN® 10 XS

MR needle –
for automated sewing processes with multidirectional function

More information available
in the "MR Needle" data sheet

In the sewing industry, increasing use is being made of automated sewing systems which place stringent demands on the sewing needle. Particularly when changing the sewing direction, when the thread is pulled out of the needle eye in different directions, changes of the thread twist can lead to an unstable loop. Standard needles reach the limit of their capability here, which results in sewing problems such as needle breakage, untidy seams (skipped stitches, thread breakage) and material damage. The Groz-Beckert MR needle is capable of dealing with these demands and so provides increased process reliability.

Multidirectional seam

Comparison scarf cross-section standard needle (left) and MR needle (right)

Comparison blade cross-section standard needle (left) and MR needle (right)

The special features

- The special blade and scarf geometry gives the needle extreme bending resistance (deflection resistance), and consequently outstanding stability.
- The very deep and long scarf allows to position the hook or looper extremely close to the needle, providing optimum protection for the sewing thread.
- The special, asymmetrically shaped thread sliding area inside the eye of the needle ensures stable loop formation (also when changing the seam direction) and so avoids negative loop formation and thread twist.
- The special thread guiding area reduces the risk of thread unwinding.

The advantages

- Fewer needle breakages
- Extremely tight adjustment of the hook or looper to the needle possible
- Reduced risk of skipped stitches
- Less thread splicing and thread breakage
- Gentle treatment of the sewing material
- High productivity due to less machine downtime
- Reduced production costs

Button sewing needles –
for the accurate application of buttons

The fully or semi-automatic function of button sewing machines places extreme demands on the needle, which is required to guide the sewing thread through the holes of the button and into the penetration hole that becomes tighter with every stitch. If the needle hits the edge of the button hole and is not guided directly into the hole, problems are bound to occur.


Fig. 1


Fig. 2


Fig. 3

The special features

1. The special geometry of the slim RG point prevents marks when impacting on the button edge (Fig. 1). In this way, the needle is directed into the button hole (Fig. 2), largely eliminating the risk of damage to the button or needle breakage.

2. The special shape of the button sewing needles reduces the penetration resistance. This places less strain on the needle and ensures gentle treatment of the material and the machine.

3. The sewing thread is guided through the button and the fabric with low friction and no prior damage, ensuring durable button attachment.

The advantages:

- Reliable function of the needle and machine (Fig. 3)
- Lower forces during penetration ensure optimum care of the material and needle.
- Reduced needle consumption
- Improved button attachment quality
- High productivity due to less machine downtime

Other Groz-Beckert needles – for perfect results when performing other sewing operations

Needle system UY 118 for flat seamers

The production of flawless flat and closing seams at extreme sewing speeds pushes needles to the limits of their capability. The quality demands made on these needles are accordingly high. A frequently occurring problem are skipped stitches due to imprecise needle alignment and insufficient needle straightness. To counter this effect, the shank and blade geometry of the UY 118 needle system is designed to guarantee a perfect alignment in the machine. This is also reflected in low penetration forces, which bring about a reduction of stitch damage. Additional benefits such as reduced needle and thread breakage help improve process reliability and quality of seams.

Blindstitch needles for externally invisible seams

The decisive factor for a blindstitched seam is that the needle picks up only sufficient fibers on the inside of the seam to ensure secure fastening without being visible from the outside. Consequently, both throughstitching and skipped stitches must be avoided. This calls for the use of a needle which is not only thin enough to avoid causing damage and prevent puckering on the fabric surface but which is also stiff enough to ensure precise penetration in the same position. Groz-Beckert blindstitch needles comply with these requirements, ensuring an invisible but securely fastened seam.

Curved overlock sewing machine needles

Overlock seams are generally produced on extremely fast-running machines which form up to 10,000 stitches per minute. Although predominantly straight needles are currently used for this application, the use of curved needles offers significant benefits. By curving the needle, a natural loop formation takes place: Once the needle reaches its bottom dead center, the loop can be reliably picked up – even with bulked yarns – as there is sufficient space between the yarn and the needle for the looper. This allows even the highest sewing speeds to be achieved. In addition, the precise design and manufacture of curved needles by Groz-Beckert leads to improved functional reliability and so to high quality seams.

Selecting the right needle

The wide diversity of processed materials and the different requirements imposed on the seam in terms of function and aesthetics make it increasingly difficult to select the right needle for any given application.

More information available in the "Technical service for sewing and joining technology" data sheet

Generally speaking, the following selection criteria apply:

- Which needle system fits in the machine?
- Which is the most suitable needle thickness?
- Which point style is best suited for the material used?
- Is the use of a standard needle sufficient or is a special application needle required?

Groz-Beckert provides an array of tips and helpful information which will assist in answering these questions – whether on the basis of personal advice, recommendations and information in our customer portal my.groz-beckert.com/sewing or the extensive information made available in our different product data sheets.

If the standard solutions should not be sufficient, then the Groz-Beckert **Technical Service for sewing and joining technology** is available to assist you. The Sewing Expertise Centers set up around the world offer extensive knowledge in all areas of the sewing industry, offering not only help with needle selection but also individual solutions for application problems, process optimization and quality assurance.

Groz-Beckert KG
Parkweg 2
72458 Albstadt, Germany
Phone +49 7431 10-0
Fax +49 7431 10-2777
contact-sewing@groz-beckert.com
www.groz-beckert.com

GROZ-BECKERT

KNITTING | WEAVING | FELTING | TUFTING | CARDING | SEWING

EN | 01.2019