

# Sewing

Sewing machine needles for leather  
and technical textiles



## Sewing machine needles from Groz-Beckert for working with leather and technical textiles

**As a leading partner along the textile supply chain, Groz-Beckert not only stands by you in the manufacture of technical textiles, but also in the manufacture of ready-made clothing. Groz-Beckert ensures excellent quality end products by providing fine-tuned sewing machine needles for technical textiles and leather.**



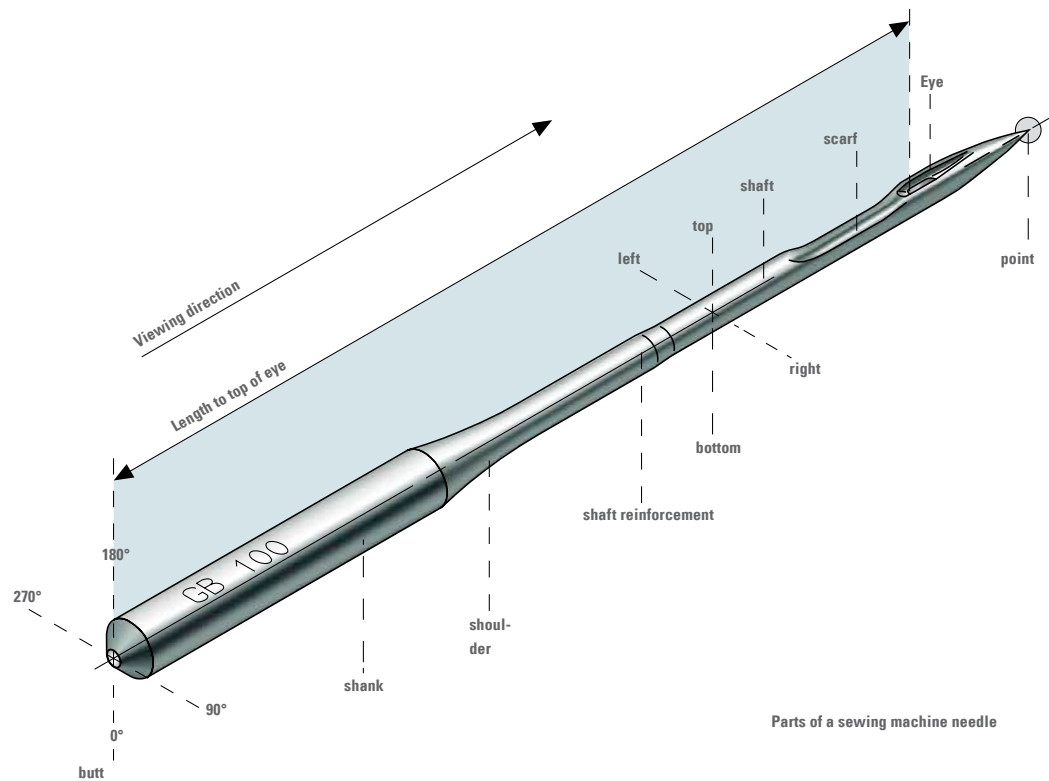
Animal skins have been made into leather for many thousands of years. Leather was first used as clothing and in living quarters to ward off cold and other outside influences. Most of the leather made in the world today is used to produce footwear, but the hard-wearing material is also employed in the automotive and furniture industries. The processing of technical textiles – that is, all textile-based products made primarily for their technical and functional properties and not for aesthetic or decorative purposes – has only played a role in the textile world for a few decades. The special requirements of this sector, such as the sewing of special materials or material combinations, also place high demands on production. Sewing machine needles from Groz-Beckert provide many benefits when working with leather and technical textiles. Different cutting and cloth points, special application needles tailored to need, and innovative manufacturing methods lead to high reliability and flawless sewing results.

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## Sewing machine needles in the spotlight

Sewing machine needles are the unsung heroes of everyday sewing. Seldom seen, seldom heard – yet they are full-time, standout performers. They exert a strong influence on the design and service life of all textile products, and also on the productivity of the sewing process. This is why it is so important to select a needle brand of proven quality and innovative solutions.



### The most important part of a sewing machine: the needle

A sewing machine cannot sew without a needle. It is the task of the needle to pierce the materials to be joined and insert the sewing thread, thereby attaching the various parts to one another. Stitches are formed between the needle and looper and needle and shuttle thread. An industrial sewing machine can perform up to 10,000 stitches per minute.

This means that sewing machine needles must be produced with very high precision in order to ensure process reliability during sewing.

Sewing machine needles come in many shapes and variants. They can be used in different sewing machines and for many different applications and stitch types.



To the customer portal

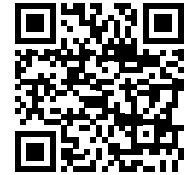
### Different types of stitch formation

Seams can be created in different ways; i.e. with different stitch types. Individual stitch types vary in the geometrical arrangement of the threads. Examples include the chain stitch, lockstitch and overlock stitch. You can find animations on the various types of stitch formation on our customer portal at [my.groz-beckert.com/sewing](https://my.groz-beckert.com/sewing)



## Proven quality

Sewing machine needles have formed part of Groz-Beckert's manufacturing program for over 30 years. They have always been produced with the latest technology and high precision, and have always boasted top-notch quality. With the steady growth of the leather industry and the markets for technical textiles, the demands made on sewing machine needles have also risen. The many innovations and ongoing development of Groz-Beckert needles meet these demands head on. Moreover, in their manufacturing perfection is pursued – starting with high quality raw material and optimized precision tools for tight production tolerances, and all the way to high quality packaging.



More information about the Sewing products from Groz-Beckert



Needle with cutting point



Special application needle SAN® 5.2 for technical textiles

The specific properties of a material must be considered when working with leather and technical textiles. Using the proper sewing machine needle is fundamental to achieving optimum results. Find out more about leather and technical textiles and discover which needles from Groz-Beckert will help perfect your end product.

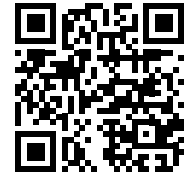


### Did you know that ...

- the first sewing machine needle was invented at the beginning of the 19th century and has remained, in its essential functions and design, virtually unchanged since then?
- Groz-Beckert's current product range consists of about 3,000 types?
- needle System 134 in itself is available in 300 variants?
- several billion sewing machine needles are used every year?

## Leather – Definition and requirements

**As a natural product, leather boasts many features which man-made alternatives cannot.  
For good reason this traditional material continues to be used in many areas.**

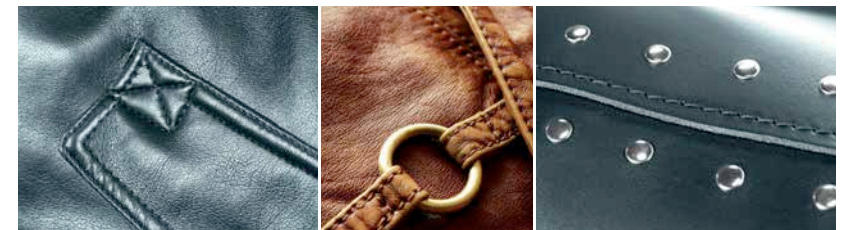


More information in data sheet  
"Working with leather"









The part of the animal skin used to produce leather is called the dermis. All leather, depending on the location of the ribs in the animal, has a grain, or fiber direction in which it better stretches, but also sooner tears. Working against the direction of the fibers then, will produce strong and tear-resistant products. Furthermore, all parts should be cut in the same grain direction, even if it requires more material. Nowadays when working with leather, not only is the durability of the seams decisive, but also their appearance, which is often determined by the fashion industry. With the aid of different cutting points the orientation of thread, depending on the leather, can be varied.







Different seams in leather products



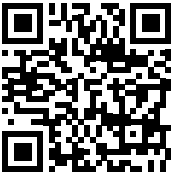
## Technical textiles and their subsectors

**Technical textiles are all textile-based products manufactured primarily for their technical and functional properties, and not just for aesthetic or decorative purposes. These include textile fabrics such as wovens, knitted and warp-knitted fabrics, felts and nonwovens, linear textile fabrics and the finished products made from them.**

Subsector	Areas of application	Product examples	
Agrotech	<ul style="list-style-type: none"> <li>■ Agriculture and forestry</li> <li>■ Gardening</li> <li>■ Fishing</li> </ul>	<ul style="list-style-type: none"> <li>■ Plant-protection and anti-weed fabric</li> <li>■ Biogas membranes</li> <li>■ Fishing nets</li> <li>■ Ropes</li> </ul>	 Agrotech
Buildtech	<ul style="list-style-type: none"> <li>■ Civil engineering</li> <li>■ Clean-up</li> </ul>	<ul style="list-style-type: none"> <li>■ Insulating material</li> <li>■ Membranes</li> <li>■ Reinforcing material</li> <li>■ Cables and ropes</li> </ul>	 Buildtech
Clothtech	Technical components for footwear and clothing industry	<ul style="list-style-type: none"> <li>■ Filling/interior materials</li> <li>■ Inserts</li> <li>■ Climate and moisture-protection membranes</li> </ul>	 Clothtech
Geotech	<ul style="list-style-type: none"> <li>■ Geotextiles</li> <li>■ Garden and landscaping</li> <li>■ Roadmaking</li> <li>■ Landfill construction</li> <li>■ Dike construction</li> </ul>	<ul style="list-style-type: none"> <li>■ Erosion protection</li> <li>■ Landfill and pond liners</li> <li>■ Drainage and filter materials</li> <li>■ Concrete reinforcement</li> </ul>	 Geotech
Homotech	Living quarters outside house and home textiles	<ul style="list-style-type: none"> <li>■ Furniture upholstery</li> <li>■ Mattresses</li> <li>■ Awnings, sun protection and canvas</li> <li>■ Ceiling, wall and floor coverings</li> <li>■ Cleaning systems</li> </ul>	 Homotech
Indutech	Commerce and industry	<ul style="list-style-type: none"> <li>■ Conveyor belts</li> <li>■ Toothed belts</li> <li>■ Filtration</li> <li>■ Carrying loops</li> </ul>	 Indutech

Subsector	Areas of application	Product examples	
Medtech	Health and hygiene	<ul style="list-style-type: none"> <li>■ Bandaging materials</li> <li>■ Prostheses</li> <li>■ Wound applications</li> <li>■ Personal hygiene towels</li> <li>■ OP provisions</li> </ul>	 Medtech
Mobiltech	Vehicle manufacturing	<ul style="list-style-type: none"> <li>■ Airbags</li> <li>■ Safety belts</li> <li>■ Automobile seats</li> <li>■ Interior lining</li> <li>■ Filter</li> </ul>	 Mobiltech
Oekotech	Environmental protection	<ul style="list-style-type: none"> <li>■ Pollutant filters</li> <li>■ Protective membrane</li> <li>■ Erosion protection</li> <li>■ Coverings</li> </ul>	 Oekotech
Packtech	<ul style="list-style-type: none"> <li>■ Absorption</li> <li>■ Transport and storage of goods</li> </ul>	<ul style="list-style-type: none"> <li>■ Transport nets and bags</li> <li>■ Transport securing</li> <li>■ Bags</li> <li>■ Awnings</li> <li>■ Tea bags and coffee filters</li> </ul>	 Packtech
Protech	Protection of persons and property	<ul style="list-style-type: none"> <li>■ Safety and protective clothing</li> <li>■ Heat, cold and weather protection</li> <li>■ Fire and ballistics protection</li> </ul>	 Protech
Sporttech	Sport and leisure	<ul style="list-style-type: none"> <li>■ Tarpaulins</li> <li>■ Backpacks and sleeping bags</li> <li>■ Canvas</li> <li>■ Balloon envelopes</li> <li>■ Parachutes</li> </ul>	 Sporttech

# Cutting points from Groz-Beckert – for creating different seam patterns on leather

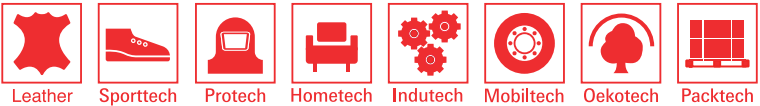


More information in data sheet  
"Point styles for leather processing"

Since leather has a different longitudinal and cross structure, seam appearance will vary, depending on sewing direction, when sewing leather with a cloth point. The reason for this are the hair canals and sweat glands running in longitudinal direction. A cutting point must therefore be used to achieve a uniform seam pattern in all sewing directions. In order to stitch different-looking seams, Groz-Beckert offers a wide range of cutting points:

<p>LR</p> <p>Cuts leather at 45° in direction of transport, slanted slightly right</p>	<p>LL</p> <p>Cuts leather at 45° in direction of transport, slanted slightly left</p>	<p>D</p> <p>Marked triangular cut in leather, straight seam</p>	<p>DH</p> <p>Medium triangular cut in leather, straight seam</p>	<p>SD</p> <p>Round point with rough-polished triangle on outside of point, straight seam</p>	<p>P</p> <p>Cuts leather at 90° crosswise to direction of transport, slanted thread provides marked decorative effect in thick and hard leathers</p>
<p>PCL</p> <p>Like point P, but with a point groove</p>	<p>S</p> <p>Cuts leather in direction of transport, straight seam</p>	<p>R</p> <p>Standard round point without cutting effect, predominately straight, slightly irregular seam pattern</p>			

Cutting points are relevant to the following areas:

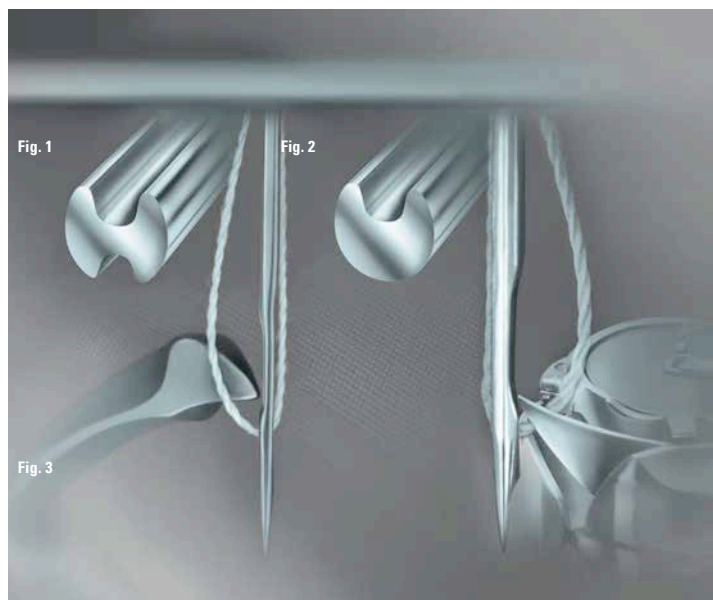


## Loop Control® – innovative needle geometry for perfect loops

A perfectly formed loop is the basis for flawless and high quality seams, which are significantly influenced by the geometry of the sewing machine needle employed. Groz-Beckert's unique Loop Control® needle geometry is an intelligent solution for backstitching and chain stitching. The secure loop formation minimizes skip stitches and the sewing thread is treated with maximum care thanks to the special geometry of the groove.

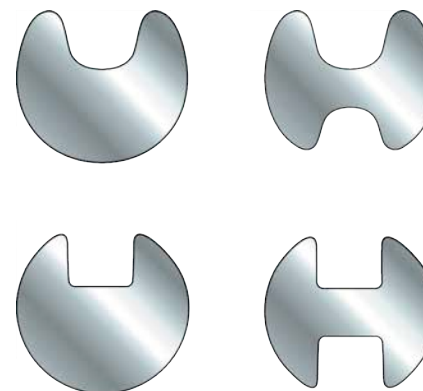


Find out more in  
the data sheet "Loop Control®"



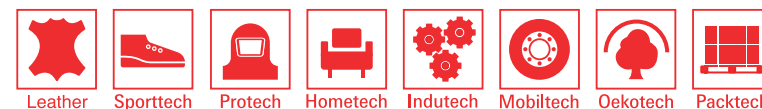
### The benefits:

- Perfect loop formation
- Lower risk of skip stitches
- Optimum treatment of threads and sewing fabric
- High needle stability
- Less needle deflection
- Less needle breakage and point damage
- Improved seam appearance
- Higher process stability



Comparison: Loop Control® geometry (top)  
and traditional needle geometry (bottom)

Loop Control® is relevant to the following areas:



## GEBEDUR® – Needles with titanium-nitride coating

In demanding sewing processes, such as the stitching of hard materials and material combinations, needle point and eye often suffer wear and tear. The GEBEDUR® special surface coating from Groz-Beckert makes needles more resistant to wear so that it withstands extreme conditions longer.

### Features:

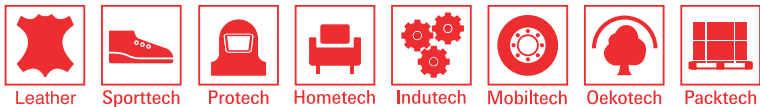
- Surface coating of titanium-nitride
- Higher coating hardness than in standard needles

### The benefits:

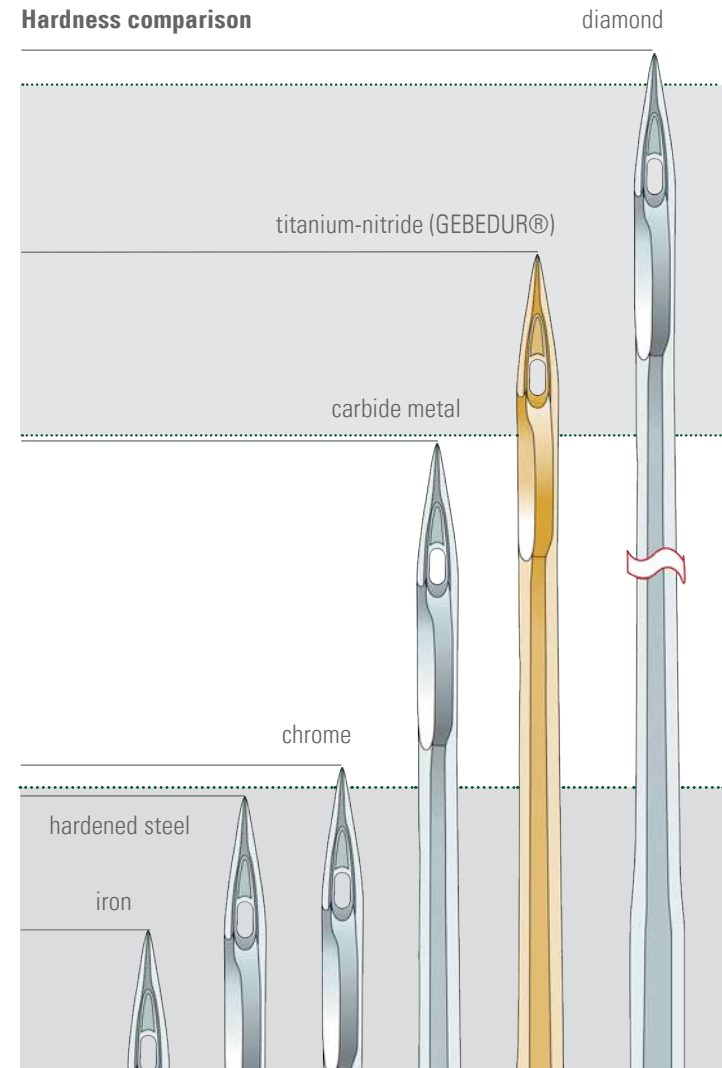
- High protection against wear and damage, especially in the point and eye area
- Consistently high seam quality
- Longer service life of the needle
- Increased productivity

Coating with GEBEDUR® is standard on certain special application needles such as the SAN® 5.2 and SAN® 6 because of the features mentioned above.

GEBEDUR® is relevant for the following areas:



### Hardness comparison



## The special application needle SAN® 5.2 – for working with technical textiles



Find out more  
in data sheet "SAN® 5.2"

Extremely hard materials or combinations of materials are often used when working with technical textiles, placing very high demands on sewing machine needles. Groz-Beckert has been offering the SAN® 5 special application needle for years, a reliable product that reduces sewing issues when working with technical textiles. The improved SAN® 5.2 needle boosts process reliability even more and provides additional benefits, in particular for multi-directional sewing applications.

### Features:

- Double groove at the point for improved thread guiding in linear and multidirectional sewing processes. Less twist displacement results in a more even seam appearance, especially in forward and reverse sewing and in multidirectional sewing processes.
- The scarf chamfer (hook chamfer) on the right side leads to secure loop pick-up with standard horizontal and vertical hooks.
- The additional scarf chamfer (hook chamfer) on the left side enables secure loop pick-up using oscillating hooks.
- This special type of blade reinforcement boosts needle stability.
- The larger eye allows for the use of thicker sewing thread without increasing needle size.
- GEBEDUR® coating

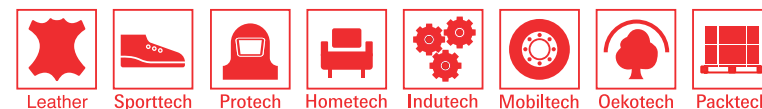
### The benefits:

- High security against skip stitches thanks to optimized loop pick-up
- Excellent protection of sewing fabric
- Consistent seam appearance
- Thicker sewing threads can be used without increasing needle size
- High protection against wear and tear
- Increased productivity and thereby reduced production costs



Clean and secure seams with SAN® 5.2

SAN® 5.2 is relevant to the following areas:



# The special application needle SAN® 12 – for perfect 2-needle decorative seams



Find out more  
in data sheet "SAN® 12"

In the production of high quality leather products, especially in the areas of automotive, upholstered furniture and accessories, a premium is placed on the appearance of fancy seams. Yet varying and uneven seams can crop up - depending on the various threading directions and loop pick-up of the left and right needle - in 2-needle machines. The special application needle SAN® 12 has been developed to improve the appearance of these 2-needle decorative seams.

## The variants

The SAN® 12 needle is available with the LR point and also with the S point. For a slanted needle position, the SAN® 12 LR is used – but only on the right side. For a straight seam appearance, the SAN® 12 S is used on both sides.

## Specifics

By precisely orienting cutting geometry with a special flat on the shank, the two seams can be approximated and appear more even. This improves seam appearance.

## The benefits:

- Consistent seam appearance
- Visually appealing end product

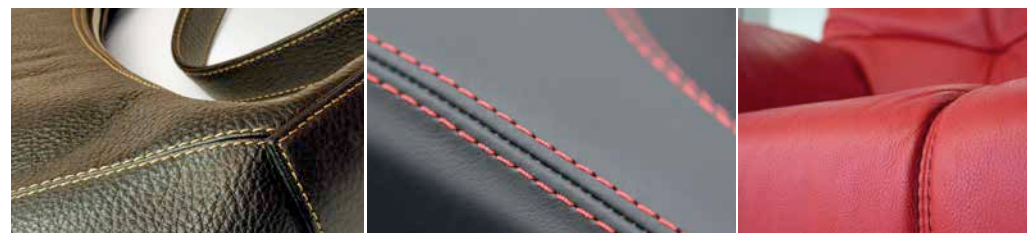
## Application of SAN® 12 LR:

- For even and harmonious seam appearance with slanted needle position
- Used only on the right side



## Application of SAN® 12 S:

- For even and harmonious seam appearance with straight needle position
- Used on both sides



Perfect seam appearance with SAN® 12 LR and SAN® 12 S

SAN® 12 is relevant to the following areas:



Leather



Mobiltech



Sporttech



Hometech

# Working with technical textiles – Mobiltech

For safety-related reasons, quality demands in the area of Mobiltech place top priority on seam quality. But joining and fancy seams must also look better than perfect.

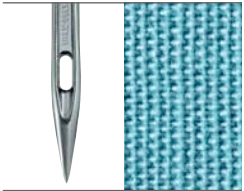
Since textiles, and not just leather, are used in the manufacture of products for mobile interior equipment, using only cutting points here would damage the textile. For this reason a cloth point is recommended for sewing combinations of leather and textile.

Moreover, in Mobiltech there are often seams joining extremely hard materials – usually glued or clad with foam. Typical application issues here include needle deflection, glued-up needle holes, and a sloppy seam appearance. The special application needle SAN® 5.2 helps reduce these problems.



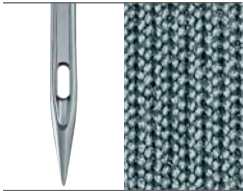
More information in data sheet "Mobiltech"

R point



**Application:**  
Standard for lockstitch, textile material, coated textiles, faux leather

RG point



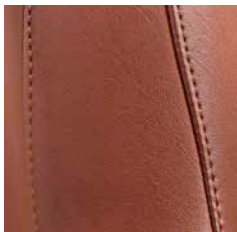
**Application:**  
Standard for chain stitching

FFG point

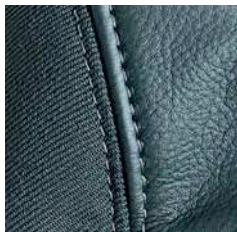


**Application:**  
Knitted fabrics in general, textile material of synthetic fabric

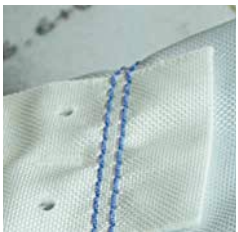
Mobiltech includes, for example, the following applications:



Leather vehicle seats



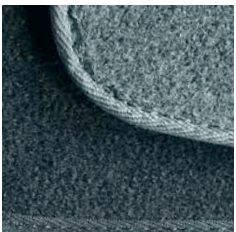
Leather and textile vehicle seats



Airbags



Safety belts



Floor mats



Seat upholstery

## More Groz-Beckert needles – for other sewing jobs involving leather and technical textiles



More information on shoe machine  
needles available in the brochure  
„Shoe machine needles and awls“



Sporttech



Protech

### Needles for shoemaking

In the production of shoes, there are not only sewing machine needles used for the construction of the uppers on shoes and boots, but also over 200 special needles and awls in our production range for attaching the soles and welting of the outsole. Whether it be rapid needles, sole stitch needles, in seam needles, rapid awls, or multi-awls, Groz-Beckert offers the right product for sewing footwear applications.



Hometech

### Needles for quilted products such as mattresses and bedding

In the manufacture of mattresses, bedding and padding, down feathers, foam and other fill material are inserted between two layers of fabric, which are then joined by a decorative pattern sewn on to them. This is usually done on special embroidery machines.

The most common needle systems for these applications are 794 H, 2331, 328, 490, 7 x 3 and SY 8160.



Packtech

### Needles for closing transport bags and similar products

In the manufacture and closing of transport bags or similar products (for example sacks for cement, potatoes and dog food), bag and bag-closing needles are used. In order to pierce the thick material, these needles must be thick and very rugged. The standard point for bag needles from Groz-Beckert is usually the Q point, to facilitate the piercing of paper bags and other similar material. However, the R point is recommended for sewing woven textiles or polypropylene in order to prevent damage to the material.



Indutech



Mobiltech

### Sewing of load and safety belts

The seams in load and safety belts must be extremely strong to prevent them from tearing under strain. The problem here is that the material becomes more dense with every stitch made in the belt. Thus it is ever more difficult for the needle to pierce the material and ensure a clean thread pull-out when exiting. The special blade geometry of needle system 328 SAN® 5 opens the needle hole as far as possible for better threading, thereby facilitating a cleaner seam.



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KNITTING | WEAVING | FELTING | TUFTING | CARDING | SEWING

