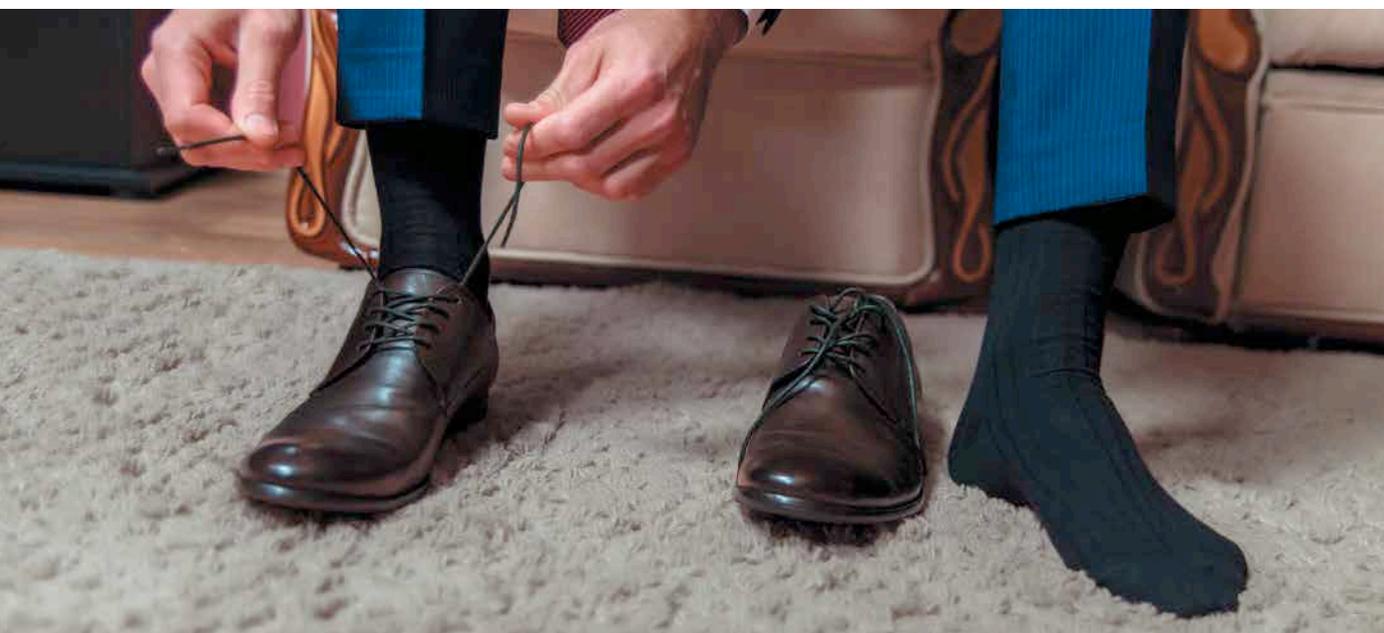


Knitting

Products and services for the sock knitting sector

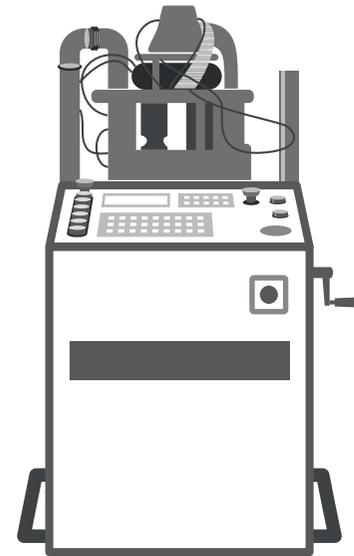


Sock manufacture

Groz-Beckert develops, produces and sells machine needles, precision parts, precision tools and systems for different textile production and joining methods. Its product portfolio serves the fields of knitting and warp knitting, weaving, felting, tufting, carding and sewing. Specifically for the knitting industry, Groz-Beckert offers more than 1,200 high-performance needles for the production of socks.



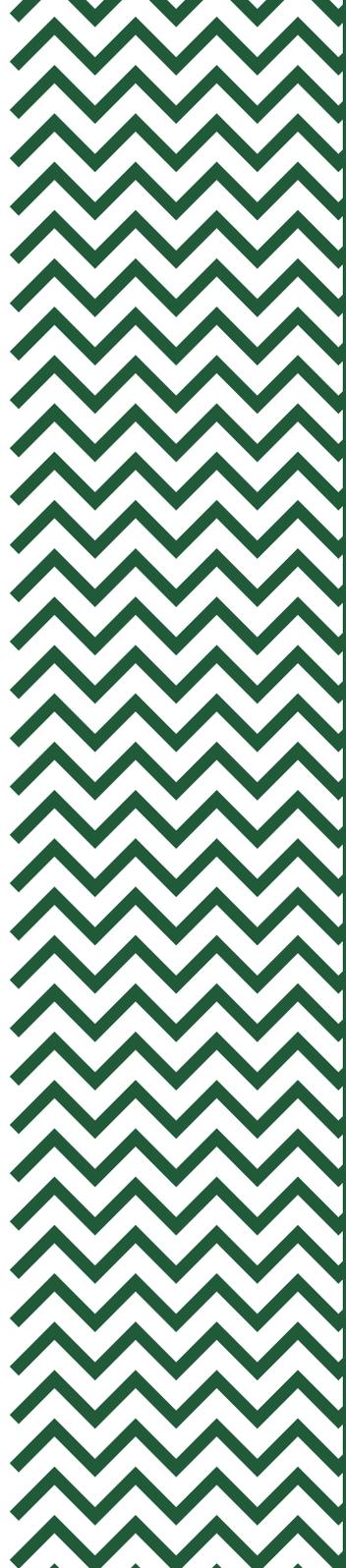
The sock machine sector encompasses a wide range of different machines. Socks are produced on single and double-cylinder machines and also on single-cylinder machines with dial. In addition, transfer techniques on single-cylinder machines with dial offer wide scope for patterning. These machines are offered with commonly used diameters of 3.5 to 5 inches, and use needles ranging in thicknesses from 0.4 mm to 1.55 mm depending on the gauge. The machines are fitted with between 1 and 4 feeders depending on the patterning possibilities. In contrast to large-scale knitting machines, sock machines do not knit continuous tubular fabric but complete individual socks. The technical sophistication of these machines is evidenced by the fact that they are able to automatically close the sock toe and so produce a finished article in a single work cycle. Typical fields of application include the manufacture of men's, women's and children's socks, sports and function socks as well as medical socks.



More than just socks

Today's standard sock machines are used to do more than simply produce socks. By making minimal adjustments to the proven technology, they can also produce ties, hats, support bandages, amputation stockings, sweatbands and much more. The new requirements imposed on modern sock machines are also making for more stringent demands on the loop forming components.

The generally complex manufacturing processes demand outstanding reliability and extreme performance from the sock needles and system components. The Groz-Beckert Technology and Development Center (TEZ) is concerned with precisely these challenges and offers sound expertise as well as extensive equipment for testing new and innovative ideas. The TEZ supports the development of innovative products by entering into what are called Co-Development projects. The specialists at the TEZ work with customers to devise possible solutions for new fields of application and to address the central challenges facing the textile industry.



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Products and services





Over 160 years of experience and a worldwide company network

Groz-Beckert stands for outstanding customer service with individually tailored systems and solutions. Alongside knitting machine needles, the Groz-Beckert performance spectrum encompasses wide-ranging services.



Product portfolio

The Groz-Beckert portfolio of knitting machine needles for the manufacture of socks encompasses latch needles for sock machines of all gauges, links needles for double-cylinder machines and system parts for toe closing as well as the entire knitting process.

Knitting machine needles	
Hofa, Hofasa	Punched latch needles, special shape for sock machines
Vo, Vosa	Punched latch needles with pre-bend, special shape for sock machines
Vo-, Vora-, Vosa-, Vosara-Spec.	Punched latch needles with transfer area
Links	Latch needles with hook at both ends for double-cylinder machines
Links-Spec.	Latch needles with hook at both ends and special design characteristics



Sock needle with friction brake
Hofa 71.70 G 018



Links needle for a double-cylinder machine
Links 56.109 G 016



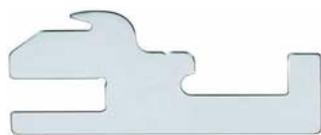
Sock needle with deflection brake and predetermined breaking notch
Vosa 71.85 G 081



Sock needle with transfer and brake spring
Vora-Spec. 30.80 G 012



Intermediate jack
ZS 64.68 G 1



Sinker
SNK 29.30 G7



Selecting jack with integral spring
ATF-3/ 106.68 G1



Transfer jack for toe closing
UT 24.100 G 5



Transfer jack for toe closing
UT 19.80 G 1



Transfer jack with cut-outs for toe closing
UT 19.80 G 10



Holding-down sinker for toe closing
NT-L 8.17 G 1

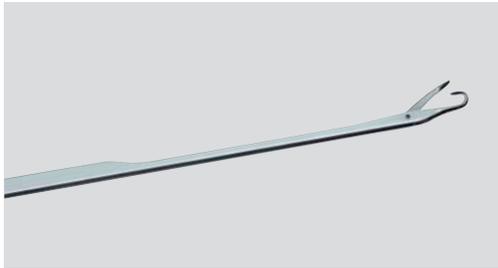
System parts

SNK	Sinker (= holding-down/knock-over sinker)
AT	Selecting jack
KT	Coupling part
UT	Transfer jack
ZS	Intermediate jack
SPT	Separator
PHT	Terry sinker



Packaging, transport and storage

Smart packaging solutions from Groz-Beckert provide you with active support in improving your cost efficiency. Less work effort directly reduces your set-up times. The effect: Reduced production costs compared to competitors.



Protective film with corrosion protection oil



Corrosion protection paper



Packaging made of fracture-resistant material with adhesive tape

Packaging solutions for needles

Climatic influences such as humidity and temperature fluctuations have a permanent impact on knitting machine parts and could compromise quality due to corrosion.

To counter this effect, Groz-Beckert developed systems for packaging its products which can comprise three components:

- Corrosion protection oil surrounds the product with an active corrosion protection.
- Corrosion protection paper reduces the influence of oxygen and water on the product.
- Plastic packaging prevents damage during transport and storage.

Product designations

What information can I find on the product labels?



What information does the product designation contain?

Hofa 71.70 G 0201

- 1
- 2
- 3
- 4
- 5

- 1 Sock needle
- 2 Total length in mm
- 3 Thickness in 1/100 mm
- 4 Groz-Beckert
- 5 Variant from Groz-Beckert

Vosa 71.85 G 081

- 1
- 2
- 3
- 4
- 5

- 1 Sock needle with lateral taper
- 2 Total length in mm
- 3 Thickness in 1/100 mm
- 4 Groz-Beckert
- 5 Variant from Groz-Beckert

Links 36.70 G 034

- 1
- 2
- 3
- 4
- 5

- 1 Sock needle for double cylinder machines
- 2 Total length in mm
- 3 Thickness in 1/100 mm
- 4 Groz-Beckert
- 5 Variant from Groz-Beckert

Vora-Spec. 30.50 G 02

- 1
- 2
- 3
- 4
- 5

- 1 Sock needle with transfer spring
- 2 Total length in mm
- 3 Thickness in 1/100 mm
- 4 Groz-Beckert
- 5 Variant from Groz-Beckert

Topics taken from practice



Every customer has individual needs and challenges. By providing experience, expertise and available capacity, Groz-Beckert can help its customers on the road to success as a supplier of systems and solutions. What are your aims?

- Do you want to squeeze the very most out of your production facilities?
- Are you in the business of producing flawless knitted fabric to a premium standard of quality?
- Are you seeking new market fields and applications?
- Do you want your production to be sustainable and gentle on resources?

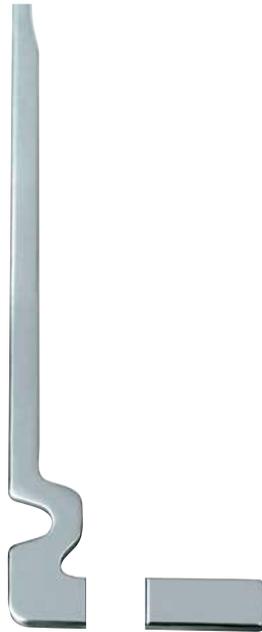
Talk to Groz-Beckert to discover ways of achieving your goals with maximum efficiency.

Load capacity of the needle butt

For optimum load capacity of the needle butt, most knitting machine needles from Groz-Beckert have a predetermined breaking notch and a defined bend.

Predetermined breaking notch in case of needle butt overload

In sock machines, it is not always possible to avoid butt breakage as a result of mechanical overload. To minimize the effects of butt breakage, certain sock needles are given a predetermined breaking notch in agreement with the machine manufacturer. The predetermined breaking notch is located on both sides of the needle butt. The shape and position are defined in agreement with the machine manufacturer to ensure that the needle butt breaks in a straight line in the event of excessive stress. This prevents costly damage to the cylinder and the cams. Overloading can occur in the event of machine malfunctions, when knots, double ends or similar enter the machine. What is important is to ensure a well-defined, even execution of the predetermined breaking notch, in order to not only avoid machine damage, but also prevent excessive weakening of the butt due to the notch.



A predetermined breaking notch at the needle butt guarantees a straight break.

Needle bend against butt breakage

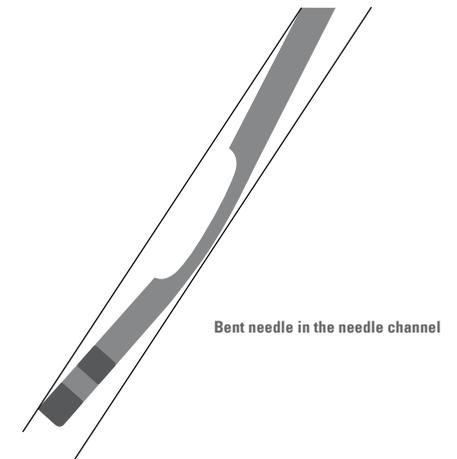
To minimize the risk of butt breakage, the needle bend must be defined and executed with high precision. Due to the wide-ranging patterning possibilities and knitting techniques used on single-cylinder sock machines, these machines are equipped with open cams. In other words: The butts are not guided around the complete periphery. This is the reason why all needles for single-cylinder sock machines have a lateral bend at the needle shank. This bend is used for the secure vertical positioning of needles in the cylinder channel. The most suitable bend geometry is defined in each case during the development of a needle. The precise configuration of this bend is important for ensuring reliable function of the knitting machine in the long term and for avoiding butt breakages. This is why particular attention is paid to this characteristic at Groz-Beckert.

Profitability/Productivity

Machine function ensured in the long term and improved process reliability due to controlled / minimized butt breakage

Quality

Uniform loop structure



Float stitch patterns

When knitting float stitch patterns, unselected yarns are laid as float stitches behind the formed loops. A reliable float function is indispensable for producing flawless fabric.

To support the float function, Groz-Beckert offers a range of needles with float hooks. With this special hook form, the crest of the outside arc of the hook is displaced towards the yarn feeder to ensure that the floated yarn is safely positioned behind the needle.

Profitability/Quality

The even shape and execution quality of this hook form are key factors for ensuring a reliable knitting process and so guaranteeing flawless fabric quality.



Float hook with latch spoon



Float hook with hook groove



Links-Links double cylinder technology

Links needles are equipped with two loop forming areas, each at the end of the needle. They are used in double cylinder machines. In these machines, two needle cylinders of the same gauge are arranged opposite each other.

As the needles do not possess their own butt, their movement is controlled by a slider which connects with the needle via the needle hook. Each needle has its own slider, one in the upper and one in the lower cylinder. This allows the needles to work in either the upper or the lower cylinder. Transfer of the needle from one cylinder to the other is also controlled by the slider. During this process, the loop slides over the entire needle shank from one loop forming area to the one on the opposite side.

Depending on whether the stitch is cast off on the upper or the lower cylinder, a purl or a knit stitch is produced. This enables constructions and patterning possibilities which would be impossible to produce on a single-cylinder sock machine. These machines are generally used to manufacture high-quality men's socks.

Quality

Uniform, flawless fabric quality



Links needle for a double cylinder machine
Links 56.109 G 016



More information about the conical hook

Maximum load capacity of the needle hook

During the knitting process, the hook, and in particular the base of the hook, are subjected to high levels of stress. Where additional stress is added due to knots, slubs, double or multiple yarns, the hook can bend or break if the elasticity limit is exceeded. Groz-Beckert developed the conical hook specifically to counteract these stress effects.

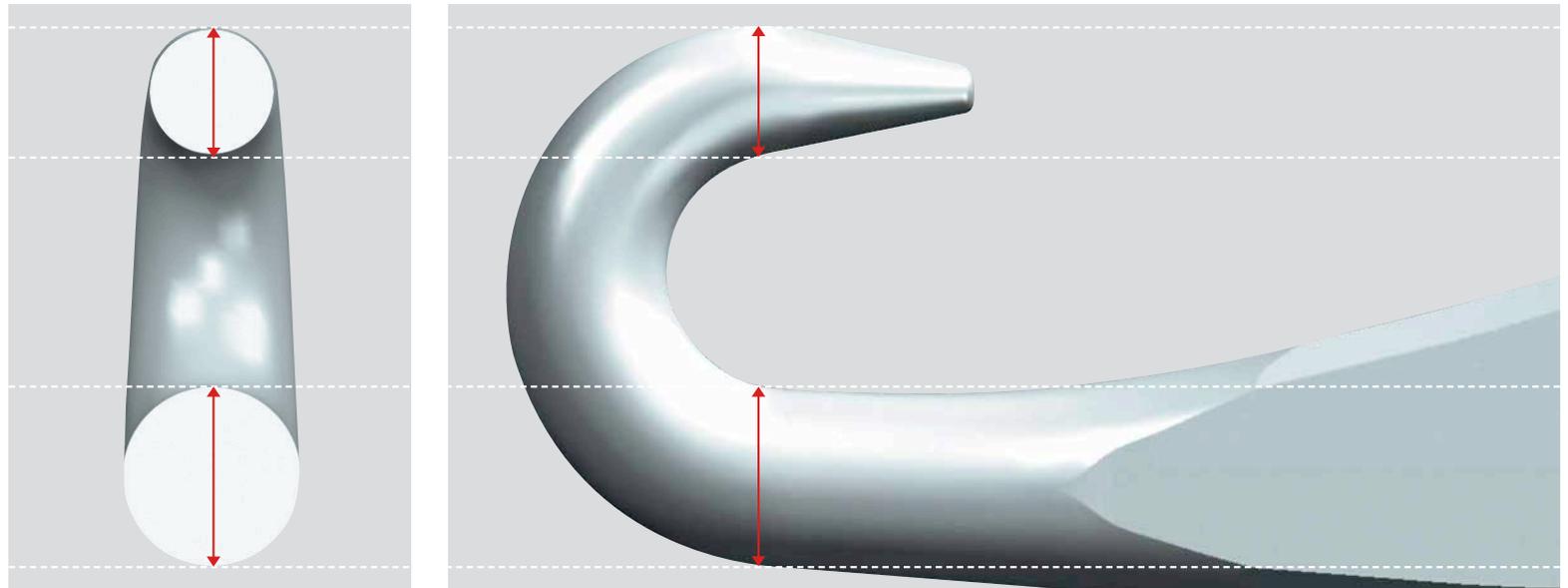
Thanks to the special geometry of the conical hook, greater yarn clearance is created between the loop forming elements. This allows both fancy yarns and also yarns with slubs and knots to be knitted without problems.

Profitability/Productivity

Reduced needle consumption and improved process reliability due to hook stability, improved casting off behavior due to an enlarged hook interior and greater thread clearance

Quality

Uniform, flawless fabric quality



Conical hook form for more thread clearance and improved hook stability

Toe closure

For the production of high-end socks, machine manufacturers offer toe closing systems for single and double-cylinder machines. These systems replace subsequent sock toe closure using sewing or linking machines.

One benefit of these systems is that they close the sock precisely to the stitch, causing minimal waste – as well as eliminating the need for a follow-up process. Sock closure demands extreme precision from the machines, needles and system components used in order to guarantee flawless stitch take-up and transfer.

Profitability/Productivity

Reliable toe closure through outstanding precision and dimensional stability

Quality

Uniform, flawless fabric quality



Plating

The elastane plating process can give rise to a range of different faults. These include holes caused by cuts into in the elastane yarn, twisted yarns or also structural faults due to unwanted float stitches caused by the elastane yarn not being laid in across one or more wales. This can be avoided by ensuring optimum machine settings in association with the use of high-grade knitting elements.



More information on
needles with prim latch type

Hook form

Alongside the classical plating hook, the Groz-Beckert range also includes various other hook shapes depending on the machine. These ensure that the threads are laid in, held and cast off in the correct position during plating.

Needle surface

To prevent yarn twist and consequently plating errors, the surfaces of Groz-Beckert needles are treated to enable optimum stitch gliding, not only in the visible area but also in the inside arch of the hook which is so important to successful plating.

Hook coverage

During plating, the feeders are frequently set in such a way that the latch movement supports yarn lay-in. To prevent the yarn from catching on the tip of the hook, precise coverage of the tip by the latch is vital. This is guaranteed by the precise-fitting groove design of Groz-Beckert needles.

With a range of special slot designs and latch geometries, Groz-Beckert offers additional innovations which specifically target the prevention of plating errors.

Profitability/Productivity

Reduced needle consumption and improved process reliability – coupled with maximum productivity

Quality

Uniform, flawless fabric quality



Round hook



Plating hook



Reverse plating hook

Transfer

Transfer technology can be used on single-cylinder machines to produce wide-ranging knitting patterns such as high-grade lacy patterns or ribbed patterning effects.

With the aid of special needle versions with transfer clips, grooves or wings, loops can be transferred to adjacent or opposite needles. This enhances knitting machine patterning diversity.

Needles with transfer clips or grooves are used in machines with a dial. These needles can be used in the dial and the needle cylinder and permit the transfer of loops to the opposite needle. This method can be used to knit a true ribbed cuff, for instance, and then a Links-Links pattern in the leg length.

Needles with transfer wings enable transfer in one direction within the same needle carrier. These needles can be used to produce lacy patterns, also known as ajour patterns.

A needle with transfer wing has a transfer area between the loop forming area and the needle butt which is shaped like a wing. This wing forms a permanent part of the needle shank.

Precisely inter-coordinated knitting components are required to ensure a reliable transfer process. Also making a significant impact on knit fabric quality is needle uniformity and the surface quality of needles and transfer clips.

Quality

Uniform, flawless fabric quality and wide-ranging patterning possibilities



Lacy patterns



Ribbed patterns



Transfer needle with transfer wing and friction brake
Vo-Spec. 78.70 G 07



Transfer needle with transfer and brake spring
Vora-Spec. 30.80 G 012



Transfer needle with transfer groove and friction bend
Vosara-Spec. 29.50 G 03

App myGrozBeckert

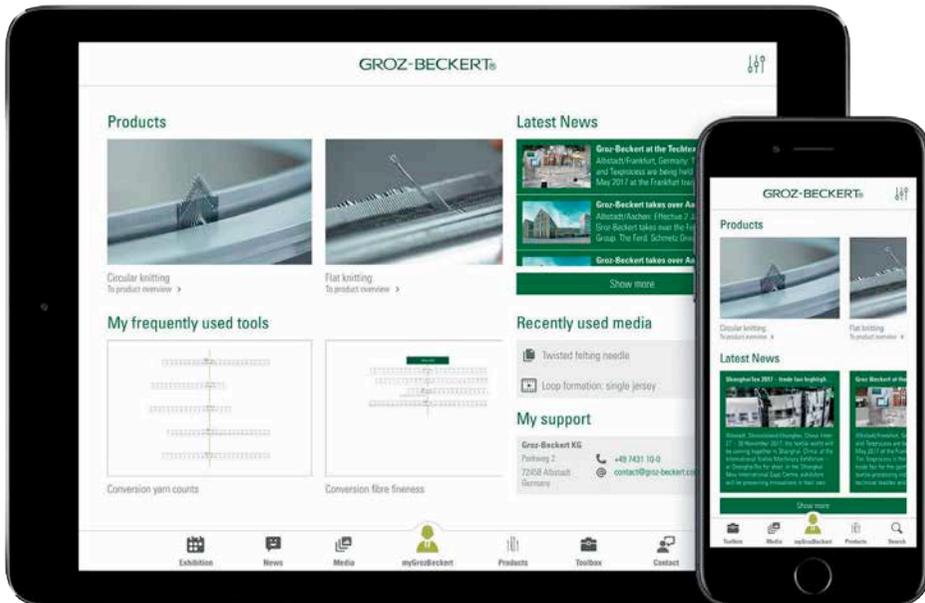
Your personal work tool

As it is one of the most essential prerequisites of working effectively, Groz-Beckert traditionally places great importance on sharing knowledge and experience. In order to provide mobile access to this know-how and make it available offline, Groz-Beckert developed an app in 2011 that contains well-founded knowledge along the textile value chain and about the company.

Since then, myGrozBeckert has continuously been developed further, and as part of the 2017 relaunch a completely customizable navigation was implemented.

This allows users to save favorites and preferred topics themselves, and change them any time as needed. This is how myGrozBeckert becomes a personal and individually configured work tool.

myGrozBeckert works with all iOS and Android smartphones and tablets, and is available in German, English, and Chinese. The free app can be downloaded through the Google Play Store, the Apple App Store or through various Chinese app stores.



myGrozBeckert

Individual information on your personal dashboard



Products

The extensive Groz-Beckert product and service portfolio



Toolbox

Recommendations, tools and calculation aids



Contact

The Groz-Beckert contact partners – worldwide



Media

Animations, videos and brochures



News

All news about the textile world of Groz-Beckert



Exhibition

Data and facts on the Groz-Beckert trade fair presence



Search

Key word search across all areas



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GROZ-BECKERT

KNITTING , WEAVING , FELTING , TUFTING , CARDING , SEWING

EN | 06.2019

