

GROZ-BECKERT



Diversity

Textile tools at Groz-Beckert



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Facts and figures at a glance

Groz-Beckert produces industrial machine needles, precision components, precision mechanical parts as well as tools and offers systems and services for the manufacture and joining of textile surfaces. Across the fields of knitting, weaving, felting, tufting, carding or sewing: The portfolio with over 70,000 precision components and industrial machine needles covers the central processes used for the manufacture and joining of textile surfaces.

Groz-Beckert is part of the Groz-Beckert Group, a market leader in the development, manufacture and distribution of process-critical textile precision tools, industrial cutting solutions and solution provider for textile construction and reinforcement solutions made from high-performance technical fibers for composite materials. The group consists of the companies Groz-Beckert, TKM and solidian and generated sales of 814 million euros in 2022 with around 9,500 employees worldwide. The company is active in more than 150 countries with agencies, production and sales subsidiaries.

Type of enterprise:

Limited Commercial Partnership
(in German: KG), family firm

Formation: 1852

Sectors:

Textile industry, precision engineering,
mechanical engineering

Production companies:

Germany, Belgium, Czech Republic, Portugal,
USA, India, China, Vietnam

Sales network:

Worldwide in over 150 countries

Employees (31.12.2022):

8.468

Turnover (2022):

743 mil. EUR



Current facts and figures on Groz-Beckert

Knitting:

Knitting machine needles, system components and
cylinders, dials for circular knitting machines

Weaving:

Healds, heald frames, warp stop motions, drop wires
and machines for weaving preparation

Felting:

Products for the nonwovens industry, felting and
structuring needles, jet strips for hydroentanglement

Tufting:

Tufting needles, loopers and tufting knives
(individually or as modules), reed finger modules

Carding:

Card clothing and accessories for the spinning and
nonwovens industry, mounting service, roller repair,
commissioning service

Sewing:

Needles for sewing and shoe machines, INH Quality
Management

Other products:

Customized precision components (CPC), plastic
products (SMG)

Applications:

Precision needles and components from Groz-Beckert
give rise to a wide range of applications for different
areas of life.

Alongside apparel textiles, home and furnishing texti-
les, technical textiles also play a key role, for instance
in medical technology, architecture or mobility.

Traditional: Precision since 1852



Theodor Groz



Ernst Beckert



Factory building, Theodor Groz & Söhne in Albstadt, 1884



Workers from Meßstetten branch, 1902



Needle manufacturing in Albstadt, around 1950

The history of Groz-Beckert is a story of diversity and transformation. It started in 1852 and was continuously driven forward by an inventive spirit, dedication and courage. This long and eventful history has placed the Groz-Beckert of today in the ideal position to help shape the textile visions of tomorrow.

The company marks its first ground-breaking innovation in 1864. Theodor Groz revolutionizes the manufacture of latch needles and is already able to supply improved needle types just one year later – to customers as far away as America. This development sparks a period of explosive expansion. It marks Groz-Beckert out as an innovator and partner to the textile industry – and provides impetus for the countless ideas and patents to emerge from the company over the following years and decades. Today, the foundation of Groz-Beckert lies over 170 years in the past. The technologies and the markets have undergone an enormous transformation in that time, with textiles conquering ever new markets as a

result of continuous improvements to materials and processes. Whoever would have dreamed back in 1852 of all the things that would one day be possible with textiles? The enormous potential offered by the textile industry continues to generate healthy growth for Groz-Beckert. While up until the 1970s, the company concentrated solely on its core product, knitting machine needles, its activities then gradually began to extend to other textile production and joining methods.

Today, the product portfolio encompasses also weaving accessories, machines for weaving preparation, felting and structuring needles, carpet machine components, products for carding as well as sewing and shoe machine needles. To supplement its proven range of precision components, Groz-Beckert also provides a wide selection of system solutions – and acts as a reliable process and service partner to the textile industry.

1852

The company Theodor Groz is founded in Ebingen, today a district of Albstadt.

1871

The foundation stone for the company Ernst Beckert is laid in Chemnitz, Saxony.

1888

One of the first factory health insurance funds anywhere in Germany is introduced at Theodor Groz & Söhne – as the precursor to the modern-day BKK Groz-Beckert.

1937

The merger of Theodor Groz & Söhne and Ernst Beckert creates the basis for today's international corporation. International trade relations exist already in these early years.

1960

With the foundation of the producing subsidiary Groz-Beckert Asia Ltd. in India, Groz-Beckert is one of the first to enter the Asian markets.

1969

Through the foundation of the producing company Groz-Beckert Portuguesa Lda. in Portugal, Groz-Beckert extends its international presence still further.



Staff in Chandigarh, India, around 1960

1980

The product range is extended. From now on, along-side knitting machine needles Groz-Beckert also offers a range of sewing and shoe machine needles as well as felting and structuring needles.

1993

Groz-Beckert founds the new producing company Groz-Beckert Czech s.r.o. in the Czech Republic.

1995

The subsidiary Yantex is established in China.

2000

After taking over the Swiss weaving accessory specialist GROB, Groz-Beckert now enters the market of healds, drop wires, heald frames and other products for weaving mills.



Headquarters in Albstadt with TEZ and GEBIZ, 2013

2008

Groz-Beckert forms the national subsidiary Groz-Beckert Vietnam Co. Ltd.

2010

A new era dawns at Groz-Beckert with the opening of its Technology and Development Center (TEZ). This year also sees the inauguration of the textile-reinforced concrete bridge – and the company receives the KYOCERA Environment Prize for its circular knitting machine needle litespeed®.

2013

The Health and Education Center (GEBIZ) is opened at the company's headquarters in Albstadt – complete with a kids' day care center, elementary school and health department.

2015

Groz-Beckert takes over the carding product range of the Bekaert Group. With this addition, the portfolio is increased to include card wires and clothings for the spinning and nonwovens industry alongside the associated services.

2017

Groz-Beckert acquires the Ferd. Schmetz Group headquartered in Aachen. Schmetz is a long-established company in the manufacture of industrial and household needles.

Together: People and potential

Production plants possess no expertise, measuring systems have no passion. The employees of Groz-Beckert provide competent service to customers and partners all over the world. Groz-Beckert creates an environment in which employees can fully leverage the potential offered by the company's machines and technologies.





Employee training and qualification

Groz-Beckert has personality; and the things that bring its employees together are excellent education, passion, identification with their job and a highly developed sense of team spirit. Extensive opportunities for further training, seminars, workshops and training courses all provide excellent perspectives. Employees have the opportunity to attend courses offered by the Groz-Beckert Academy. Groz-Beckert also offers international trainee programs across different product divisions, fields of activity and also geographical borders. The focus is firmly on the future. Just under 200 young people are currently undergoing training in commercial and technical professions in Germany alone. The spectrum ranges from apprenticeships and dual study placements to combined courses.

Partnerships and joint ventures

Both in its training program and its research and development activity: Groz-Beckert cooperates with vocational colleges and universities as well as a range of different associations along the whole length of the textile value chain, including the Carbon Composite Association.

Important partners, for example, are also the North Rhine-Westphalian Technical University Aachen (RWTH), University of Albstadt-Sigmaringen, the University of Reutlingen, and the Nonwovens Cooperative Research Center (NCRC) in North Carolina, USA.

Training and study opportunities (each m/f/d)

- Industrial mechanic
 - Mechatronics engineer
 - Surface coater
 - Materials tester
 - Technical product designer
 - Production mechanic, textiles
 - Textile laboratory assistant, textile technology
 - Industrial clerk
 - IT specialist
 - Social insurance clerk
-
- Combined study course for the job of industrial mechanic and Bachelor of Engineering, specializing in mechanical engineering
 - Combined study course for the job of IT specialist and Bachelor of Engineering, specializing computer engineering
 - Bachelor of Engineering, specializing in electrical engineering-automation
 - Bachelor of Science, specializing in information systems
 - Bachelor of Arts, specializing in industry
 - Bachelor of Arts, specializing in controlling and consulting

Responsible: Mutually committed

In the textile world, the name Groz-Beckert is synonymous with customer focus. This requires every employee to identify with his or her project, drive it forward and take responsibility for it. But responsibility is not a one-way street. Which is why Groz-Beckert is fully committed to its employees and to investing in their future.

Ebingen

Januar den 17. Januar 1888.

Übergang mit dem Protokoll
über die Generalversammlung der Mitglieder
der Fabrikantenbank der Firma Theodor Groz & Söhne
dieser zum Zweck der Raffinerie.

Die für die meiste Fabrikantenbank der Firma
Theodor Groz & Söhne in Ebingen
aufgestellten Statuten sind von dem H. Oberamt
Walingen genehmigt worden.
Neue Statuten haben mit dem 1. Januar 1888.

Kraft
— Kauf der auf gefalteten Weppst. beizufinden
S. 26. Derselben sind in einem
übergebenen Brief.



Values and philosophy

Groz-Beckert is professional, innovative and quality-conscious. Groz-Beckert acts in a spirit of fairness and cooperative partnership – both internally and externally. Values such as these not only ensure a pleasant working climate, but also form the basis for the company's continued success in the international arena – hand in hand with a corporate philosophy focused on the future. Its premise: "Quality is what happens when agreement and execution coincide". Through organic growth and selective investment, for instance in the Technology and Development Center (TEZ) opened in 2010, Groz-Beckert continues to consolidate its market position and tap new potential.

Its goals are to ensure sustainable economic efficiency, to establish and extend an above-average market share and to develop leading product technologies. Goals which are all made possible by the efficiency and motivation of the company's workforce.

BKK Groz-Beckert

Those covered by Groz-Beckert's own health insurance fund, the BKK, have every reason to rest assured. They are secure in the knowledge that they will receive a reliable, competent service, and a wide selection of added benefits and services – from the premium program through homeopathic treatments, a choice of different tariffs and excellent patient care. Although fund membership is restricted, alongside actual Groz-Beckert employees, family members also benefit from what the BKK Groz-Beckert has to offer – and they have been doing so since 1888. This was the year in which the company health insurance fund was founded – one of the first in Germany. Still today, there are consultants on hand in the company to advise fund members: in the health department of the Health and Education Center (GEBIZ).

The Groz-Beckert Foundation

Regional. Focused. Sustainable. The mission of the Groz-Beckert Foundation is to provide selective support to children and youngsters from the town of Albstadt and the surrounding area. Its particular focus is on selected educational projects. With this aim in mind, the Groz-Beckert Foundation supports positive social and community developments. In-depth consultation with stakeholders, teachers, educators and social workers ensures that resources are invested to best effect.

Integrative: The Health and Education Center (GEBIZ)

Reconciling job and family commitments is one of the major challenges facing society. By creating the Health and Education Center, Groz-Beckert is addressing this issue – and also creating optimum framework conditions for the targeted health care of its employees in the immediate vicinity of the workplace.





Education

Groz-Beckert operates a private elementary school with all-day care as well as a daycare for children 0 to 6 years old. The company strives to meet the desires of its employees for flexible infant care, pedagogically demanding education, and compatibility between career and family. The aim is to create a family-friendly working and corporate culture. The educational concept practiced here is based on the premise which places the child and its world view at the center. The entire education department is run bilingually in German and English, with native speakers encouraging even the youngest to become familiar with English through play. Alongside the core subjects of German and math, the focus is also on technology and science, creativity and art, as well as on researching and developing.



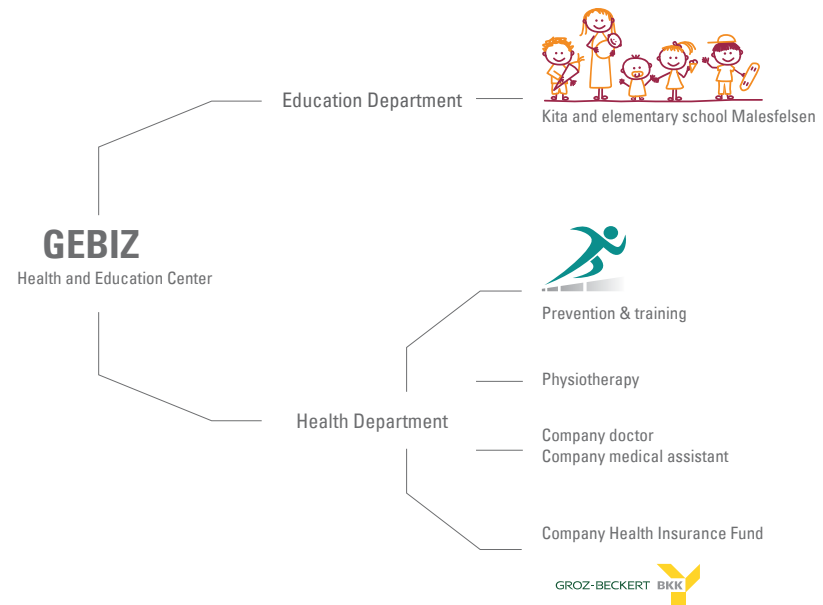
The Health Department

The company's own in-house health insurance fund BKK Groz-Beckert, the company doctor and company medical assistant enjoy optimum working conditions in the Health Department. Employees of Groz-Beckert and BKK Groz-Beckert insurance fund members can also use the "TAF Training-Ausdauer-Fitness" (Training-Endurance-Fitness), which encompasses a prevention and training center and a public physiotherapy practice. This opens up an integral, holistic healthcare concept which provides optimum conditions for selective health care and rehabilitation. There are mutual benefits to be gained for both the employees and the company: Because it is only by maintaining general good health that each individual can produce their best work and stay focused and motivated.



The GEBIZ

- Investment amount: 17.5 million euros
- Education department with kids' daycare center and elementary school
- Health department with prevention and training center, public physiotherapy practice, company health insurance fund, company doctor and in-house paramedics



Sustainable: A comprehensive commitment to responsible activity

As a family-owned company with over 170 years of history, sustainability has always been part of Groz-Beckert's self-image and corporate culture. We act with foresight and take responsibility for our employees, our environment and the society in which we operate. This makes sustainability an integral part of our corporate strategy and the foundation of our success.





Sustainable management

At Groz-Beckert, we want to create value – for the society, our environment and within the value chain. We are continuously expanding our commitment, developing measures and setting goals in the areas where we have an influence as a company.

The people who work for us are at the center of this approach. We want to provide them with a safe and modern workplace, protect their health and enable them to develop both personally and professionally. In order to achieve this, we are taking advantage of the opportunities offered by digitalization and are working on new models for collaborative working, especially in the field of production.

Another important component of our sustainability commitment is the reduction of our CO₂ emissions, right up to company-wide climate neutrality in Scope 1 and 2 by 2040. In order to achieve this goal, we are consistently working to reduce our energy consumption, applying energy-efficient concepts for

new buildings and focusing on in-house generation of energy from renewable sources.

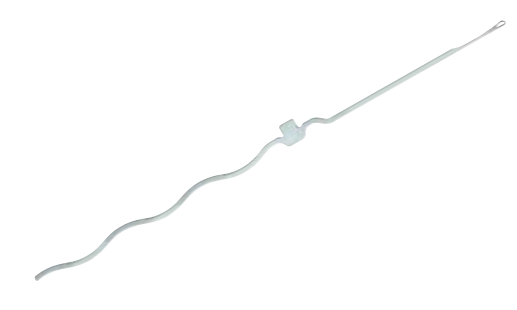
Blue Competence

Groz-Beckert is an Initiative Blue Competence partner with the VDMA (German Engineering Federation). The initiative promotes sustainability in machine and plant construction and raises awareness for sustainable solutions in the sector. With the Blue Competence partnership, Groz-Beckert is committed to complying with twelve guiding principles for a sustainable approach.



Green Team

Sustainability is a key focus at Groz-Beckert and is firmly anchored in our corporate strategy. We are constantly expanding our commitment as a company with various measures in the areas of environment, social aspects and strategy. Our employees are also an important pillar here, because: For us, sustainability starts with each individual. Their ideas, expertise and creative drive help us to effectively anchor sustainability in the company and make it tangible in everyday work. This is why Groz-Beckert invites its employees to play an active role with the Green Team founded in November 2022. Today, more than 40 colleagues work together on various topics, exchange ideas and develop measures.



Sustainability in the product world

Groz-Beckert stands for maximum precision, consistent customer focus and flexible service. We want to create sustainable value, which is why we are constantly working on the longevity of our products and the optimization our product portfolio. The longer our products can be used by customers, the fewer environmental and climate risks are associated with our value chain. Another important aspect is saving resources and energy in the manufacture and subsequent use of our products. One of our latest developments, the LCmax™-circular knitting needle, for example, leads to 20 percent energy savings compared to conventional needles and also lowers the machine temperature, resulting in lower cooling requirements.





Precision: the Groz-Beckert product portfolio

Tools for textile production comply with stringent standards at Groz-Beckert: Precision in every last detail, right down to the micron range. What does this take? Deep-seated expertise in the field of precision engineering, sound metallurgical knowledge, from coating through to heat treatment.

The extreme precision that characterizes the whole of the varied product range starts long before production – for instance in the specially selected choice of raw materials. Only specially defined steel types with flawless surfaces are used in the products. These high standards apply equally to the production process. This is such a specialized field that only specially developed machines and tools are used. The result: tolerance limits in the range of thousands of a mil-

limeter. Of course these are impossible to recognize with the naked eye – but they are vital to ensure a long service life and the assurance of absolute process reliability.

The production process is accompanied by far-reaching quality assurance measures, which extend to our own laboratory. Prior to delivery, the products have to pass a rigorous assessment by highly qualified and experienced specialists. But precision is about far more than just accurate production. With market-oriented developments, prompt deliveries and sound, competent advice, Groz-Beckert customers can relax in the knowledge that they have a solid partner beside them.

Knitting: High-performance needles, fine cylinders

Products

Products and systems for everything relating to loop formation are Groz-Beckert's traditional core business. Today, the knitting sector portfolio encompasses around 50,000 different products. For instance fine stocking needles whose latches move faster than the beating wings of a dragonfly – at a rate of up to 120 times a second. Needle selection parts are also available which permit split-second needle selection during production. Whether needles or system parts: Many of the components involved in loop formation are covered by the portfolio. This applies to circular and flat knitting machines, raschel, tricot and flat warp knitting machines as well as galoon crocheting and narrow fabric looms. In the circular knitting sector, Groz-Beckert also fulfills the role of an integral

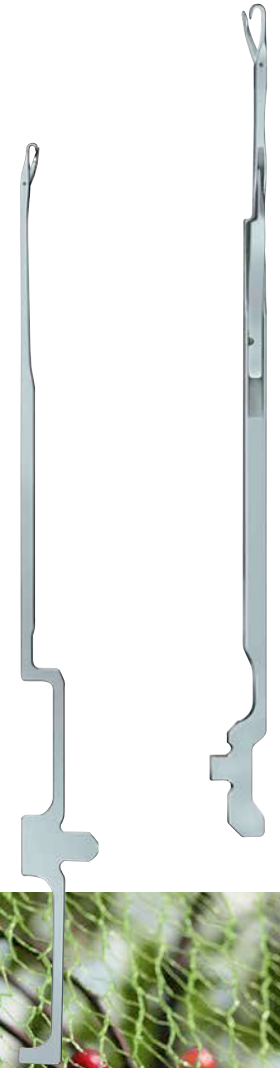
system partner: From the needle through system components and knitting cylinders to services designed to increase productivity. Packaging and coating solutions also form part of the portfolio.

Service highlight: Competence in lubrication

Groz-Beckert supports users with universal competence in the field of lubrication. This enables the effective use of needle oils in knitting machines. Its service ranges from advice through problem definition to solution. Detailed analyses enable reliable statements to be made on the applicability of needle oils.

Product highlight: Gauge E90

Groz-Beckert sets new records. After solutions were presented in 2007 for the production of fabrics in gauge E66, the company broke its own world record just four years later. A new knitting technology using the world's finest knitting cylinder and finest precision components now allows ultra-fine E90 gauge knit fabrics to be produced.



Weaving: Perfect accessories, innovative preparation

Products

Heald frames, healds, drop wires, warp stop motions and products for leno weaving in the weaving accessories sector, tying machines and frames, cleaning and drawing-in machines in the field of weaving preparation: In total, Groz-Beckert offers over 12,000 products for weaving. Technical expertise is especially vital when it comes to the manufacture of dense fabrics or fabrics with sensitive warp threads. An array of patents and on-going development processes ensure optimum performance and economy. Alongside these specialist markets, the high-performance volume manufacture of simpler fabrics in international markets is also catered for. In other words: Groz-Beckert supplies the right accessories for all existing types of weaving machines. Healds, heald frames and drop wires are

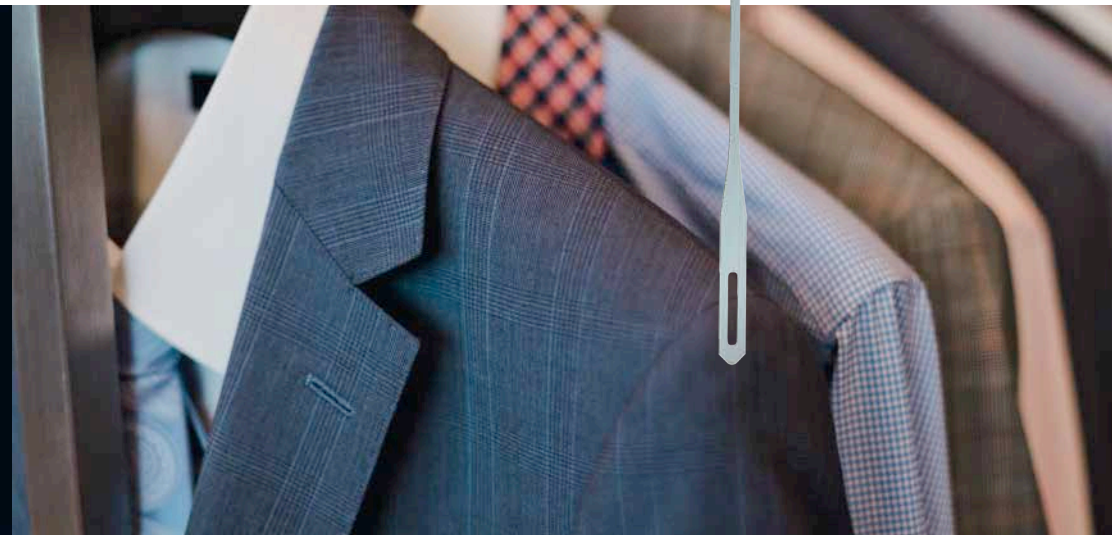
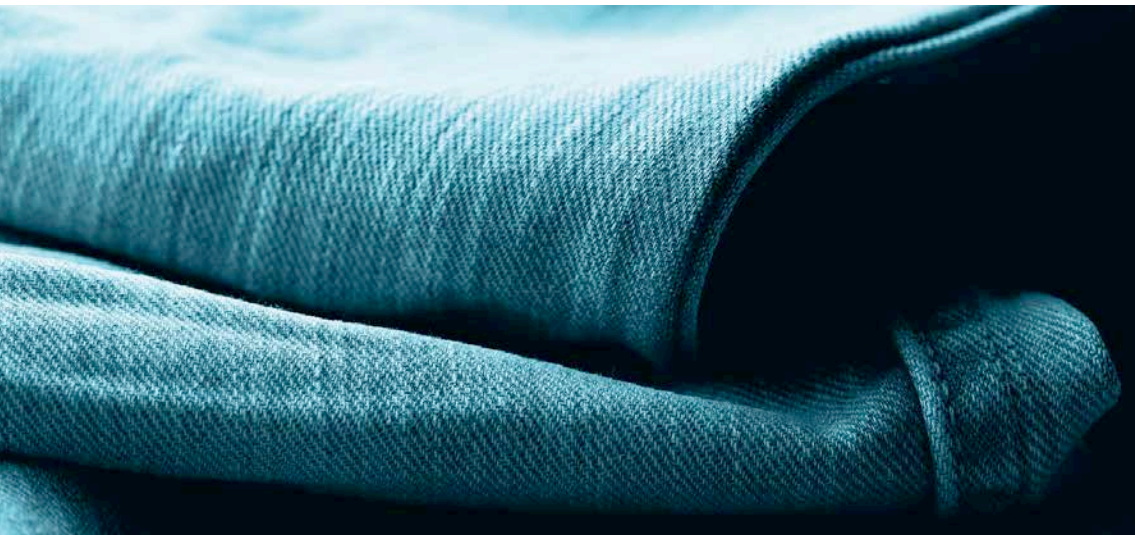
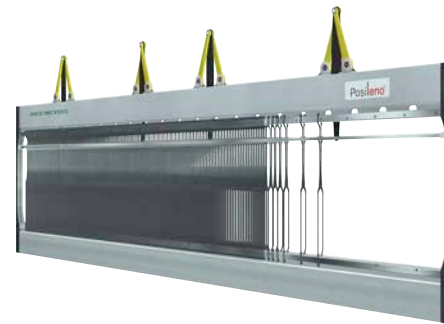
needed for automatic drawing-in – not only using Groz-Beckert drawing-in machines.

Service highlight: Technical support

There is no substitute for personal advice. This is why Groz-Beckert provides support for weaving machine manufacturers and weaving mills around the world with competent technical advice. Groz-Beckert is able to find an individual solution no matter what the application, and has the right answer to every textile-related inquiry.

Product highlight: PosiLeno®

The PosiLeno® leno weaving system from Groz-Beckert has revolutionized the manufacture of leno woven fabrics – a lucrative market niche with a promising future. Whether for apparel textiles, home textiles or technical textiles: Compared to conventional solutions, woven fabric production can be doubled using the positively driven leno device.



Felting: Reliable processes, consistent further development

Products

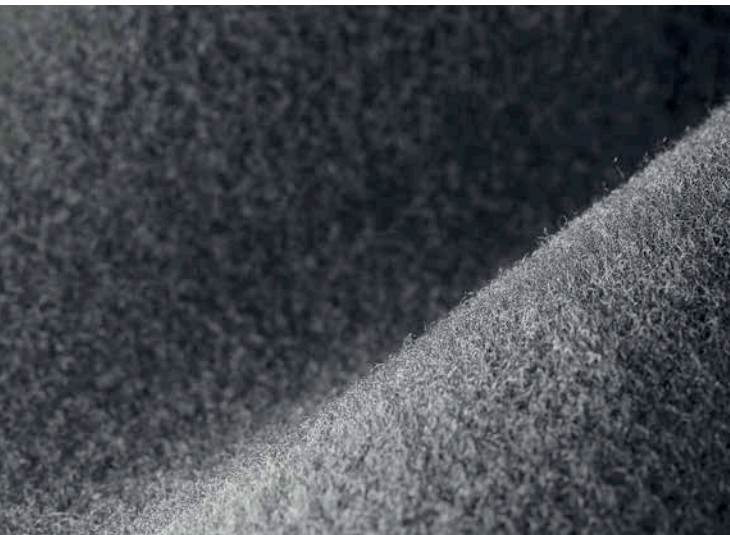
Groz-Beckert supplies solutions to the nonwoven fabric industry for producing with every conceivable type of fiber material: wood fibers, animal fibers, mineral or synthetic fibers. The portfolio contains more than 2,000 needles for flat needling or structuring. Focal areas include consistent further development for optimization of the nonwoven fabric production process, and targeted expansion of overall competence in the field of nonwoven fabric bonding. With its "Nonwovens innovation initiative", Groz-Beckert aims to improve commonly used felting needles by changing or redeveloping materials, geometries or coatings. One example of this is the EcoStar™ felting needle.

Service highlight: the Technical Center Felting

The Competence Center Felting Technology in the Technology and Development Center (TEZ) is equipped with a universal staple fiber needle punch line and various measurement and testing devices for textile and metal tests. This creates the ideal analysis and testing conditions for new developments and material tests. The staple fiber needle punch line can be used, for instance, for principle tests in the areas of geotextiles, filter media, automobile, synthetic leather or home textiles. The system is also available for uses such as order development, small-series production, in-house projects and for the Groz-Beckert Academy and partners like universities.

Product highlight: GEBECON™

If stringent demands are made on the surface of technical felts, for instance in the automotive sector, synthetic leather and filtration felts, the GEBECON™ felting needle should ideally be used for pre-needling. This type of needle offers the ideal combination of even breaking resistance and good surface quality in the end product.



Tufting: Young technology, fresh ideas

Products

Tufting is a very recent method of surface production in the textile industry. This entails applying an even, dense pile to a woven textile backing fabric. In terms of the end product, there is a fundamental distinction between loop pile fabric and velour. With over 2,000 products, Groz-Beckert offers a complete portfolio and is an industry trend-setter: from optimizing the breaking strength and dimensional stability of materials through to maximizing the service life of tufting systems. The company is also synonymous with solutions to the very highest standard of quality. A wide range of options surrounding the product portfolio guarantees the ideal interaction between needles, loopers, reed fingers and also tufting knives. Today and in the future, Groz-Beckert is committed

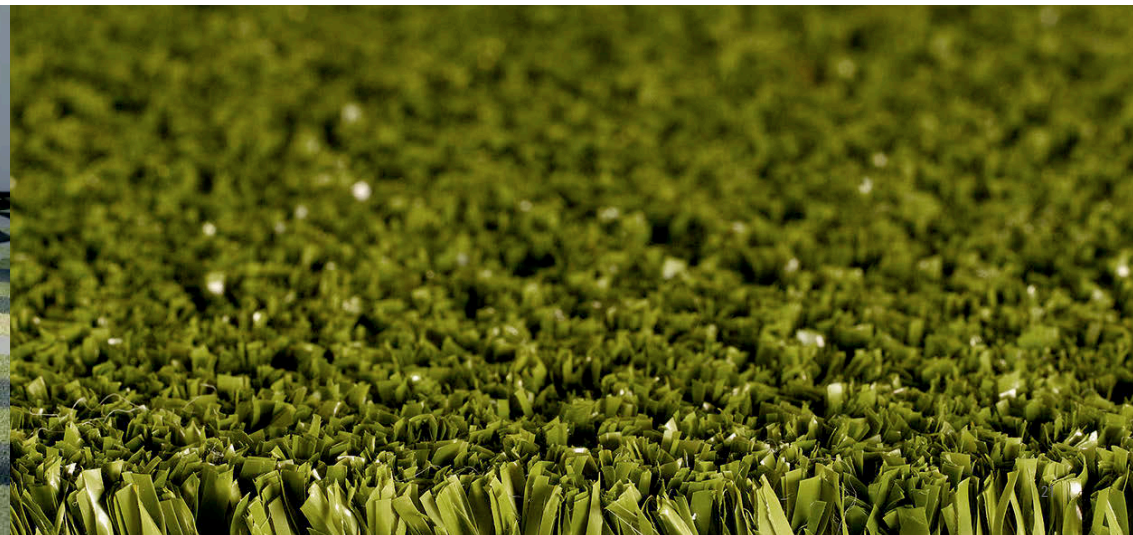
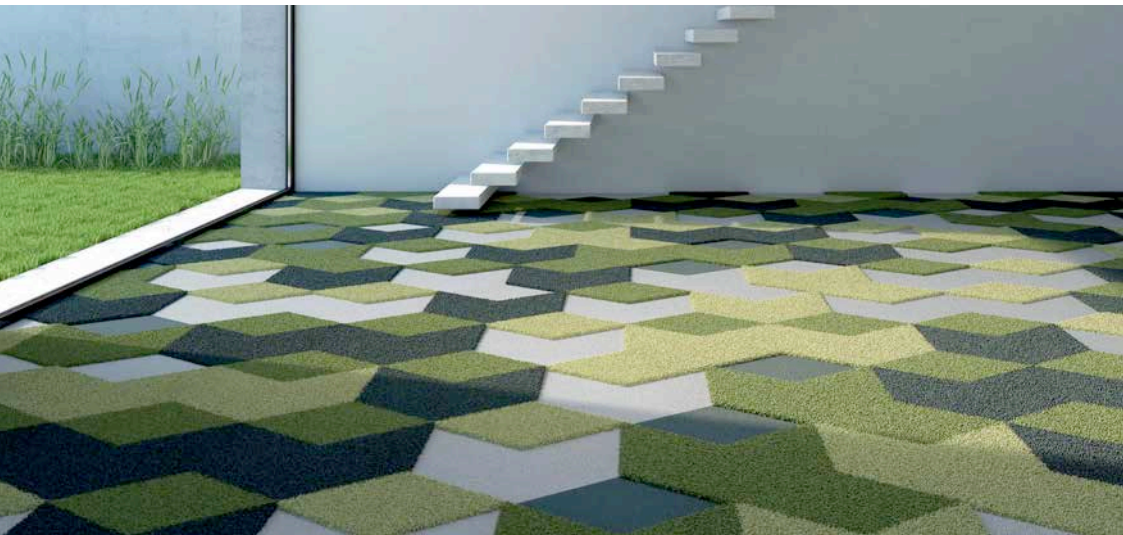
to enriching the market with a continuous input of new ideas and products, such as tufting tools for the production of stone floors.

Service highlight: Online tufting catalog

With its online tufting catalog, Groz-Beckert is making available a continuously updated tool enabling customers to conveniently find and precisely identify gauge parts. Rapid product inquiries, intuitive operation, high-quality inquiry management – through to the communication of fundamental knowledge: All of these are made possible by this interactive support service.

Product highlight: Gauge Part System

The Groz-Beckert Gauge Part System testifies to the efficiency of this convenient customer service, bringing together comprehensive development, process, production and application competence. Customers can rest assured that they have chosen the correct combination of materials and optimum interaction between all tool components for wide-ranging types of tufting application.



Carding: Complex solutions, simple implementation

Products

In the process of spinning or nonwoven fabric manufacture, the term carding is given to the process of initially straightening the loose textile fibers used to produce a pile or nonwoven fabric. The machines used to perform this process are known as cards or carding machines. Groz-Beckert offers a whole range of products and services for carding from a single source: From advice, product recommendations and an entire product portfolio to roller repairs and a mounting and commissioning service. The product portfolio encompasses card wires and clothing for the spinning and nonwovens industry. Groz-Beckert serves textile machine manufacturers and textile producers the world over with innovative products and a comprehensive range of services.

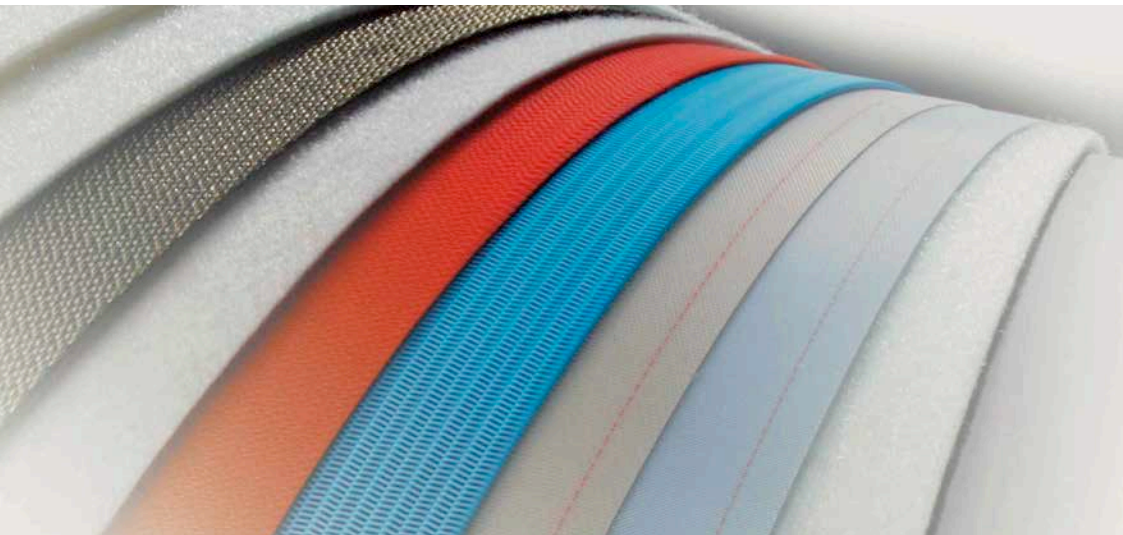
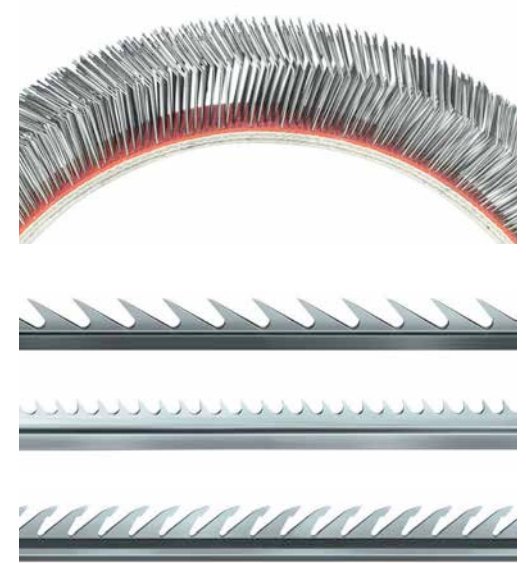
Service highlight: Services for nonwoven cards

Mounting, repairs, advice – the Groz-Beckert service for nonwoven carding encompasses everything from application advice to roller repair, and all the relevant steps from card clothing removal to recommissioning.

Specially trained experts provide competent support using the very latest equipment. Our nonwoven carding services comply with the accustomed high standard of quality, efficiency, innovation, flexibility and reliability you have come to expect from Groz-Beckert.

Product highlight: SiroLock™ doffer and worker wires

SiroLock™ card clothing for nonwoven cards comes with a unique step in the tooth geometry. The fibers are ideally controlled at the tooth step, ensuring significantly improved fiber doffing and allowing more fibers to be transferred than conventional wires.



Sewing: Wide-ranging applications, always the perfect seam

Products

Whether lockstitch, chainstitch or oversewn seams, multilayered jeans, leather processing or highly complex special applications: Groz-Beckert offers precisely the right needle no matter what the application – with a total portfolio of around 3,000 products. It covers every field of the textile and shoe industry, because wherever textiles and leather are being processed, there will always be seams.

As ever finer knit and woven goods are produced, gentle treatment of the fabric is becoming a focal issue. This is why Groz-Beckert works to continuously optimize its precision tools, generating and further developing properties to aid gentle fabric treatment and lengthen service life. Groz-Beckert also finds the right

solutions for almost unsewable fabrics – naturally also in the increasingly important field of technical sewing. Whatever the application, customers benefit not only from the high quality of the needles but also from sound advice and process optimization. The company's leading position in the world market is testimony to the success of this approach.

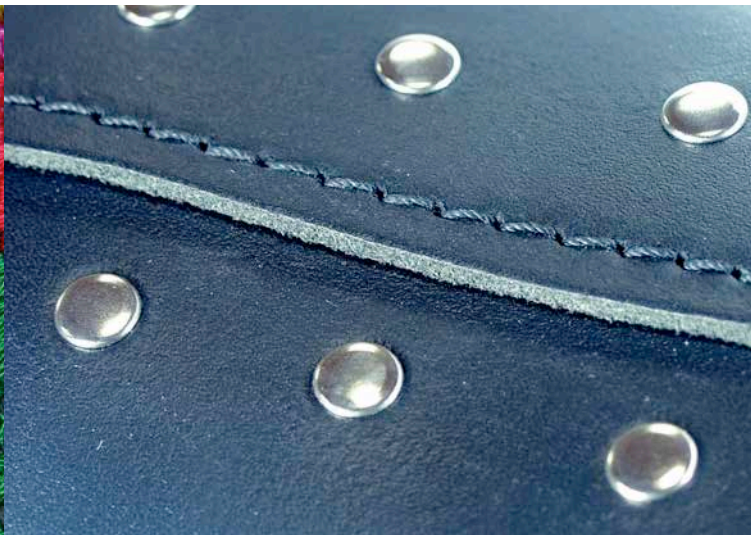
Service highlight: Decentralized sewing laboratories

From selection of the right needle through employee training courses to advice on alternative joining methods: Groz-Beckert makes sewing laboratories available to its customers both at its headquarters in Albstadt, Germany, and at other locations around the world. A worldwide presence based on uniform stan-

dards – for the rapid solution of individual application problems.

Product highlight: SAN™ 12

In the automotive world – and particularly the premium car segment – every detail counts, not least the decorative seams. With its cutting point needle SAN™ 12 for 2-needle decorative seams, Groz-Beckert has set a whole new standard. Whether SAN™ 12 LR for slanted seams or SAN™ 12 S for straight ones: A uniform decorative appearance and absolute process reliability are guaranteed.



Other products

Groz-Beckert not only supplies the right products and services across every type of textile production and joining process. Its range also encompasses other fields in which precision is paramount. The Customized Precision Components (CPC) product sector evolved out of the extensive expertise in microtechnology and metallurgy gained through the company's core business. The Groz-Beckert subsidiary Schmeing also produces and markets innovative plastic products under the SMG brand.

Customized Precision Components (CPC)

Groz-Beckert has consistently developed this product sector to create a new field of operations. Customized Precision Components are bespoke precision parts, punches and dies for special machines used in

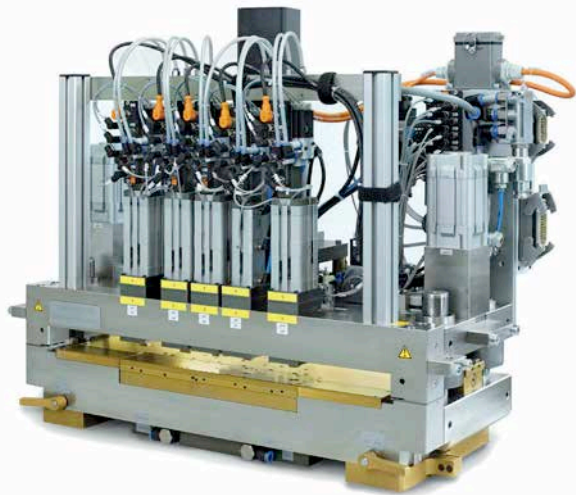
technologically complex applications. The manufacture of these products calls for extreme care and precision – right down to the micron range. Groz-Beckert supports its customers in the development of these tools and dies with essential expertise right from the early conception phase. The material used predominantly in their manufacture is carbide, although other materials such as ceramic, titanium or steel are also processed. Because of the diversity of production methods on offer, the portfolio ranges from complex one-off production through to the series manufacture of sophisticated products. Their fields of application are varied, covering everything from micro-metering systems to metrology and semi-conductor electronics. This is why the Groz-Beckert customer base includes companies from the aerospace engineering and automotive supply industries.

SMG plastic products

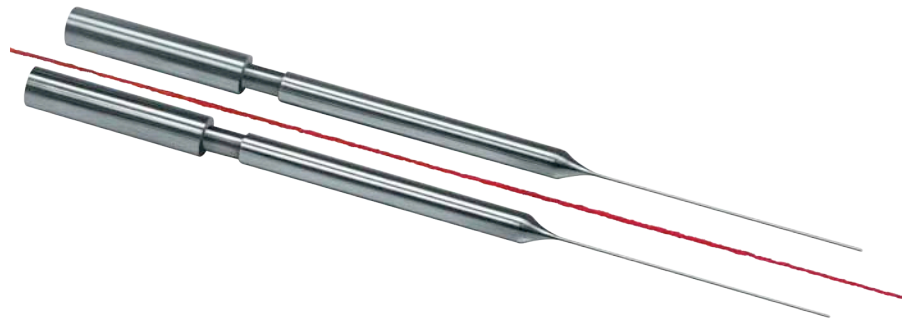
As a member of the Groz-Beckert Group, the firm of Schmeing in Raesfeld, Germany not only manufactures carpet-machine components for the production of tufted floorings but also markets high-quality plastic products under the brand name SMG, including plastic ball bearings. From in-depth advice, through the concept phase to the production of prototypes and series manufacture, customers receive comprehensive support.

These products are used in wide-ranging different industries, such as the food industry, the chemical and pharmaceutical industry and in medical technology. Examples include plastic ball bearings made of PEEK, PPS or PI – using balls made of glass or stainless

steel – for use in high-temperature applications. Whether you order an available product or commission a service: State-of-the-art testing and measuring machines and our own in-house laboratory create the ideal conditions for the development of tailored solutions to wide-ranging requirements.



Special-purpose punching die



Size of miniaturized precision components seen relative to a thread



Plastic ball bearing from SMG

Other services

Service at Groz-Beckert has many facets. Alongside services for individual textile production and joining methods, a wide range of over-arching services are also offered.

Customer focus plays a focal role at Groz-Beckert generally – for instance when it comes to answering application-specific questions without the usual red tape. This encompasses areas ranging from advice on the best use of needles or healds, or how to improve needle handling. But service also means: ensuring optimum availability. By using smart logistical systems, the required needle types and systems can be made available when and where they are needed – around the world. And service means being on the spot with a worldwide presence and a global network of sales subsidiaries and agencies.

Laboratory Services

Damage and chemical analyses, material consulting and development as well as custom-tailored solutions: With its Laboratory Services, Groz-Beckert makes available far-reaching materials expertise across a whole variety of sectors. Alongside the textile industry, customers include also companies from such fields as the aerospace industry.

Groz-Beckert Academy

Groz-Beckert provides its customers and partners with all-round services along the entire length of the textile value chain. This includes building up a store of knowledge and imparting it – across entire generations. With the Groz-Beckert Academy, the company

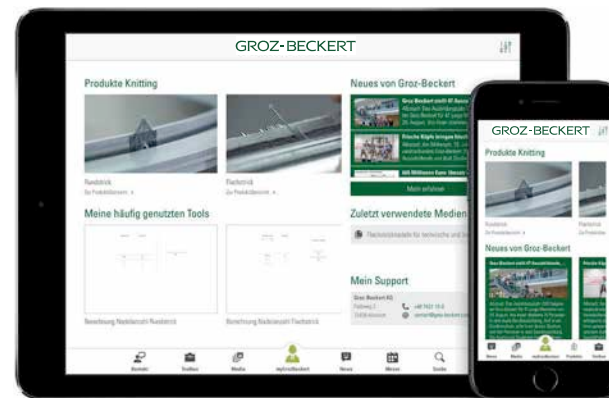
offers a comprehensive training program that covers all the most important textile production and joining methods. Alongside a wide choice of basic, advanced and special training courses, all of which take place in the Technology and Development Center (TEZ) in Albstadt, there are also individual training courses available to customers at their own premises.

App myGrozBeckert

myGrozBeckert has brought the textile world together in one app since 2011. It provides information on Groz-Beckert products as well as the company itself. The highlight of the app is the Toolbox, which provides the user with useful conversion and calculation tools, for instance. The app also informs you of any news and events having to do with Groz-Beckert.

The newest version of the app was released to app stores in 2017 with fully customizable navigation. This allows you to save favorites and preferred topics yourself, and change them any time as needed, so that you can work individually and efficiently.

myGrozBeckert works with all iOS and Android smartphones and tablets, and is available in German, English, and Chinese. You can download it through the Google Play Store, the Apple Store, or through various Chinese app stores.







Innovative: Groz-Beckert is paving the way

Research, develop, improve: The maxim that drove Theodor Groz and Ernst Beckert on to be successful entrepreneurs – and which ultimately led to the formation of a globally active group of companies – is a tireless one. Time and again, the company's fundamental research coupled with state-of-the-art technologies have resulted in ground-breaking improvements and innovations for the industry. Today, innovation remains one of Groz-Beckert's core values, as well as being an important unique selling point in today's toughly competitive marketplace.

Since 2010, the company's Technology and Development Center (TEZ) has provided a platform unique anywhere in the world for shaping the future of textile technology in association with machine manufacturers and users, textile producers and institutes. Here we also investigate materials and new technologies for textile fabric production and make them market-ready.

The Technology and Development Center (TEZ): Shaping the textile future together

New potential and efficiency improvements within the textile value chain, Co-development of market-ready products and textile-related applications: With its Technology and Development Center, Groz-Beckert has created a totally unique facility for the textile industry.

For customers and partners, the TEZ represents a marvelous resource for optimization and development tasks and business partnership requests:

Optimization partner:

- Re-network expertise with the TEZ
- Use our wide range of technologies for your projects
- Protect and save your own resources

Development partner:

- Use the TEZ as a link between textile, application and technology
- Involve an interdisciplinary team of TEZ experts
- Benefit from the extensive TEZ network and expand your own

Business partner:

- Benefit from our experience from various industries and applications and from the resulting synergy effects
- Use our global environment as an opportunity to expand your business

Services offered by the TEZ:

- Competence centers for various textile production and joining processes
- Bundling of the competencies: Central laboratory, product portfolio, engineering expertise
- Expert advice and joint solution development for specific problems
- Joint optimization of your processes
- Training and further education along the textile process chain
- Taking on development and project management services for your projects
- Support for complex developments in the textile context
- Joint development of new, innovative products, technologies and business models
- Auditorium for events such as specialist events and symposia



Mission and goals

Committed textile experts, machines and equipment close to production, many years of experience and comprehensive know-how: The TEZ brings together the very best. Expertise in the most diverse textile production and joining methods and textile applications combines to create synergies, as the TEZ accommodates not only the different technical centers but also the central laboratory. Immediate access is available to the comprehensive product portfolio as well as to vast mechanical engineering expertise.

The TEZ unites a scientific orientation and state-of-the-art equipment with the economic drive of a successful industrial enterprise. Different customers add value in different ways. One approach is the development of innovative market-ready products with a

textile relevance. Alongside precision components and systems for textile production, this also involves the development of innovative textiles and fabrics in close cooperation with customers and partners. Another approach taken by the TEZ is to leverage potential and enhance efficiency within the textile value chain.

Options

Groz-Beckert supports its customers and partners in the TEZ based on their individual requirements. Whether optimization, development or new business – competent advice and joint solution development for specific problems are the top priority. This results in the joint optimization of existing processes and support for complex developments in the textile context.

Networking

Network thinking is a key factor at the TEZ. In addition to partnerships with industry, Groz-Beckert relies on a wide variety of scientific collaborations. Groz-Beckert seeks to further develop knowledge gained in joint fundamental research. Experts from all fields and disciplines along the textile value chain come together at the TEZ. New opportunities for collaboration emerge from the common links between different target groups. The TEZ is also ideally equipped in terms of space. For specialist events and symposia, the TEZ Auditorium offers the ideal setting for up to 275 guests, including modern multimedia technology and interpreting booths.

The TEZ – Development beyond Technology!



More information about the TEZ

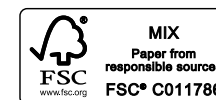






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GROZ-BECKERT

KNITTING , WEAVING , FELTING , TUFTING , CARDING , SEWING

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