

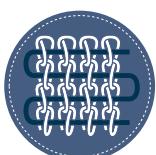
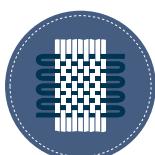
YOUR PARTNER FOR INNOVATION



## GERSTER TECHTEX

TECHNICAL TEXTILES  
FOR COMPOSITES,  
INDUSTRY AND  
SMART SOLUTIONS

THE PREFORM EXPERTS



**Gerster**  
TechTex



Carbon spiral  
by round-weaving  
technique

# INNOVATION WITH TRADITION

## 135 YEARS OF EXPERIENCE IN TEXTILE MANUFACTURING

Gustav Gerster GmbH & Co. KG is one of the leading European textile manufacturing companies with the headquarter in the heart of South Germany, in Biberach/Riss. Since over a century Gerster has been producing exclusive curtains and accessories that satisfy the highest quality standards.

In 2004, a new business unit for technical textiles, Gerster TechTex, was established. The know-how in textile technology supported by the long lasting experience has encouraged the rapid development of the company, its services and partner network.

Our key expertise is preforms and reinforcements for composites and narrow woven tapes. We manufacture a broad range of products for automotive, aerospace, building and construction, sports equipment and many other markets. We have a flexible and creative mode of operation and support our customers to bring ideas to life. We develop and produce special made-to-order textiles from carbon, glass, aramid and a great variety of technical synthetic fibres using the most state of the art equipment.

Our technology facilities consist of six textile technologies: yarn twisting, braiding, narrow and broad weaving, knitting (crochet) and coating. We use yarn twisting to produce reinforced and functionalized gussets. With our braiding machines, a wide range of high quality hoses are manufactured for industrial and automotive application. Crochet technology offers vast opportunities in the production of biaxial and multiaxial textile preforms, highly

drapable non-crimp fabrics, heating textiles, textile sensors and electronics integration. A great number of products are produced by narrow weaving. Our exclusive know-how is round-weaving which enables the continuous manufacturing of products such as carbon spirals. With broad weaving machines, we produce flax, glass and carbon fabrics. On top of that, we can functionalize and process our textiles by thermoplastic and epoxy coating.



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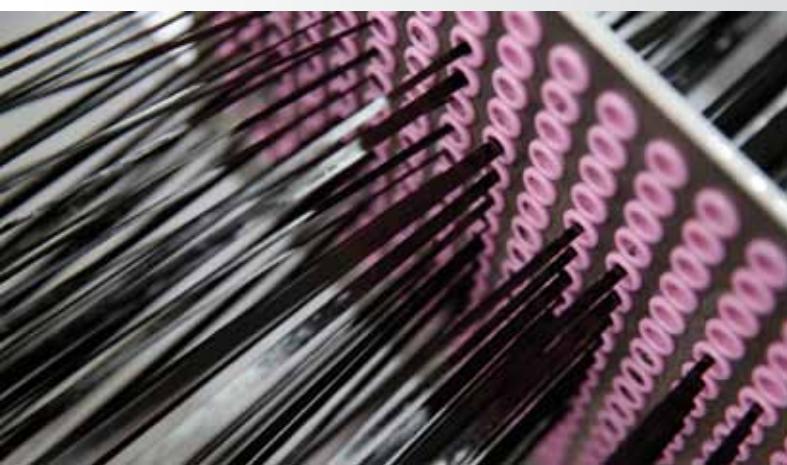
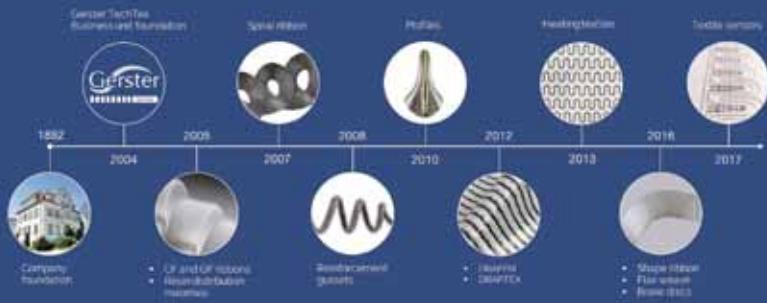
### FROM IDEA TO MASS PRODUCTION

For over 15 years, Gerster TechTex is developing and manufacturing high performance technical textiles for a wide range of applications and markets. With its knowledge of materials and applications, Gerster TechTex is your partner for demanding and custom-tailored textile solutions. We have a flexible and creative mode of operation and work to bring your ideas to life. Our team supports our customers throughout the entire product development process and takes care of building the best scenarios to deliver a high-level quality solution. Our services include Design & Construction, Planing & Development, Production & Preforming, Consultation & Support.



TechTex experts consult on material selection, technological approaches for implementing fibre-reinforcements, technical textiles products and smart textiles.

Since 2004 we have developed more than 12 products and submitted more than 10 patents.



Our markets are automotive, transportation, aerospace, civil and machine engineering, sports equipment, medical and healthcare and smart textiles.

We work together with more than 500 companies and research institutes in Germany and worldwide.

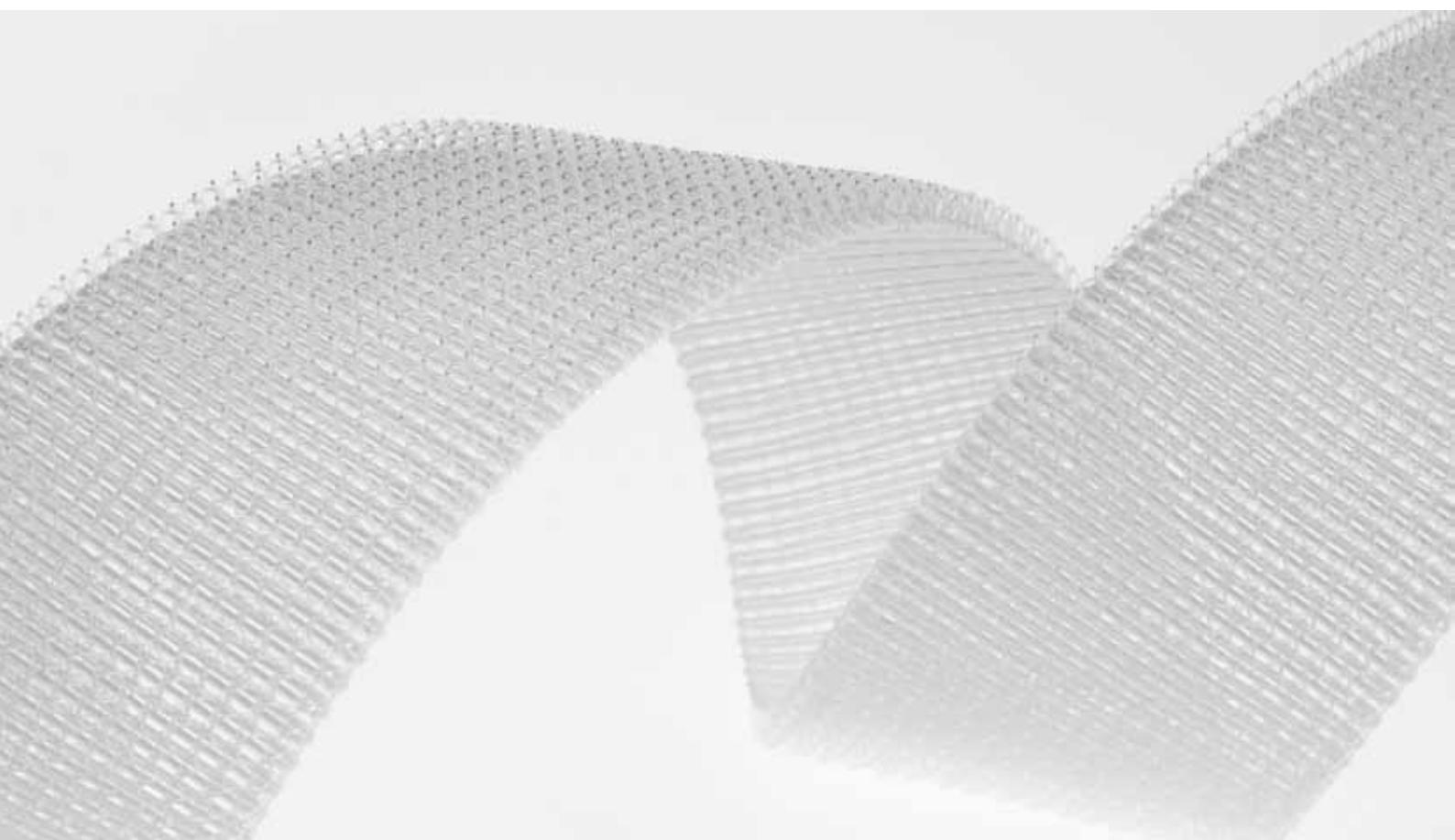


Our mission is to produce the best technical textiles solutions for any challenge through innovation and quality. Therefore, we view ourselves as a reliable development partner for our customers. Get in touch with us!

## RESIN DISTRIBUTION MATERIALS

### TAPE AND MEDIA FOR VACUUM INFUSION PROCESS

Resin tape is a textile flowing aid which supports and improves the manufacturing of fibre reinforced composites by a vacuum infusion process. The wrap-knitted tape consists of monofilament loops that serve as a flowing channel for resin.



Resin distribution tapes are produced with a double sided self-adhesive tape that simplifies its surface application.

Resin distribution tape structure provides homogenous distribution throughout the reinforcement fabric and is easy to adjust to curved shapes.



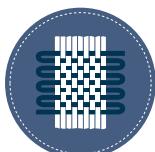
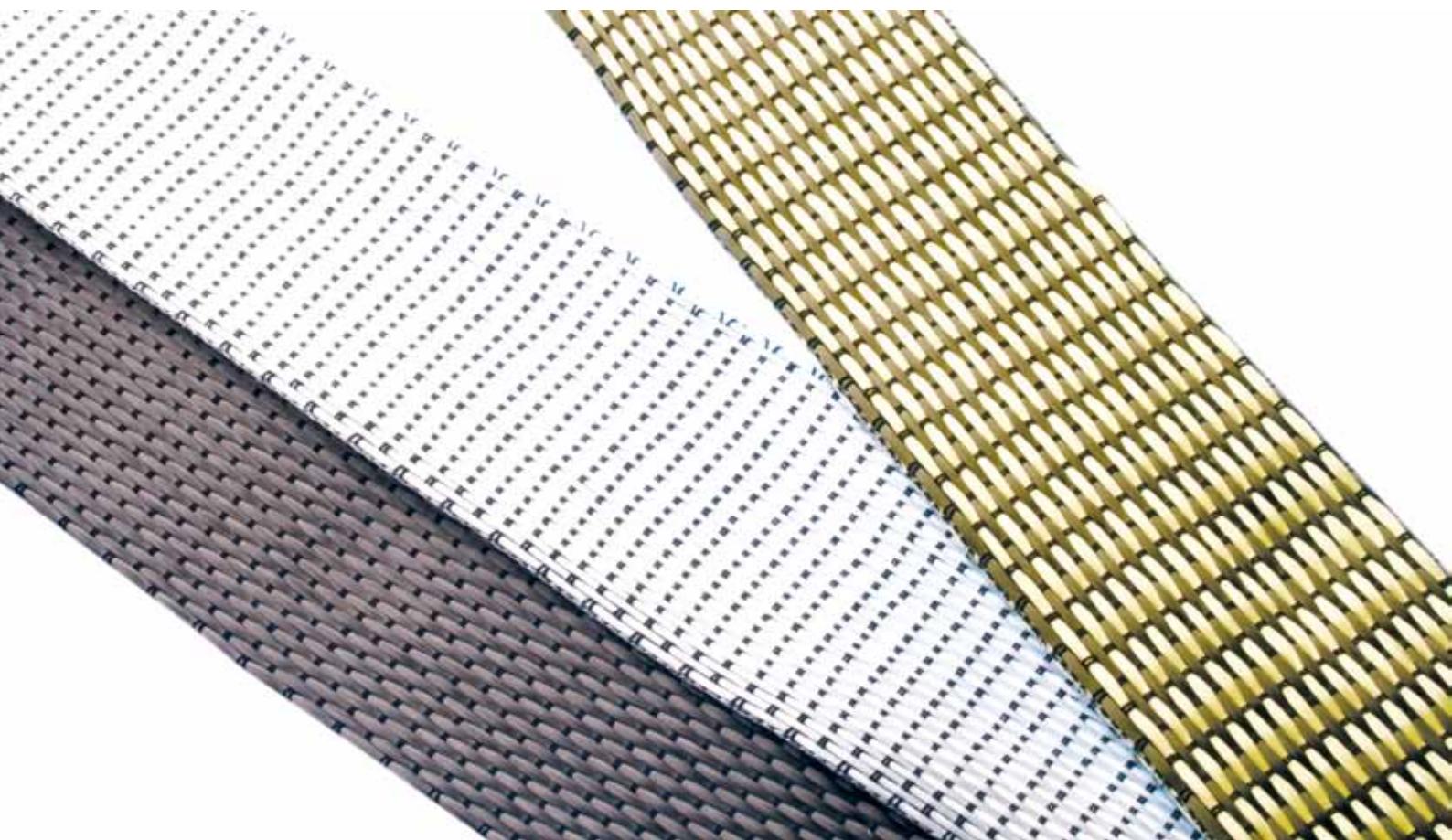
The adapter for resin distribution tape serves as a connection between the resin or vacuum hose and the resin distribution tape. It supports the infiltration process during the manufacturing of fibre reinforced compounds.

Due to its outstanding flexibility and elasticity, the resin distribution media is easy to adjust to the most sophisticated shapes of the designed composite assembly. The low weight per unit of the resin distribution media sufficiently reduces the waste of resin.



## WOVEN RIBBONS AND TAPES FOR HIGH-PERFORMANCE PRODUCTS AND COMPOSITES

Narrow woven ribbons and tapes for composites, industry and other technical applications are one the most sought after products of our portfolio. We offer our customers great variability in materials and structures, implementation of hybrid and multi-layered ribbons that include twisted and braided local reinforcements, fast prototyping and cost-efficient manufacturing.



We produce more than hundreds of custom-made technical ribbons and tapes annually.

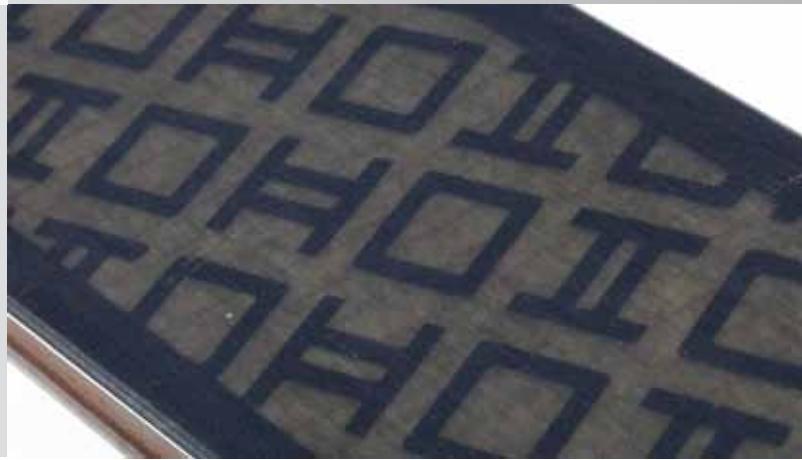
Our ribbons and tapes are supplied to a great variety of markets such as sport gear, rescue and medical equipment, ship building, windcraft, aerospace, construction and mechanical engineering.



All of our tapes and ribbons can be submitted to further processes such as RTM, vacuum infusion or pultrusion.

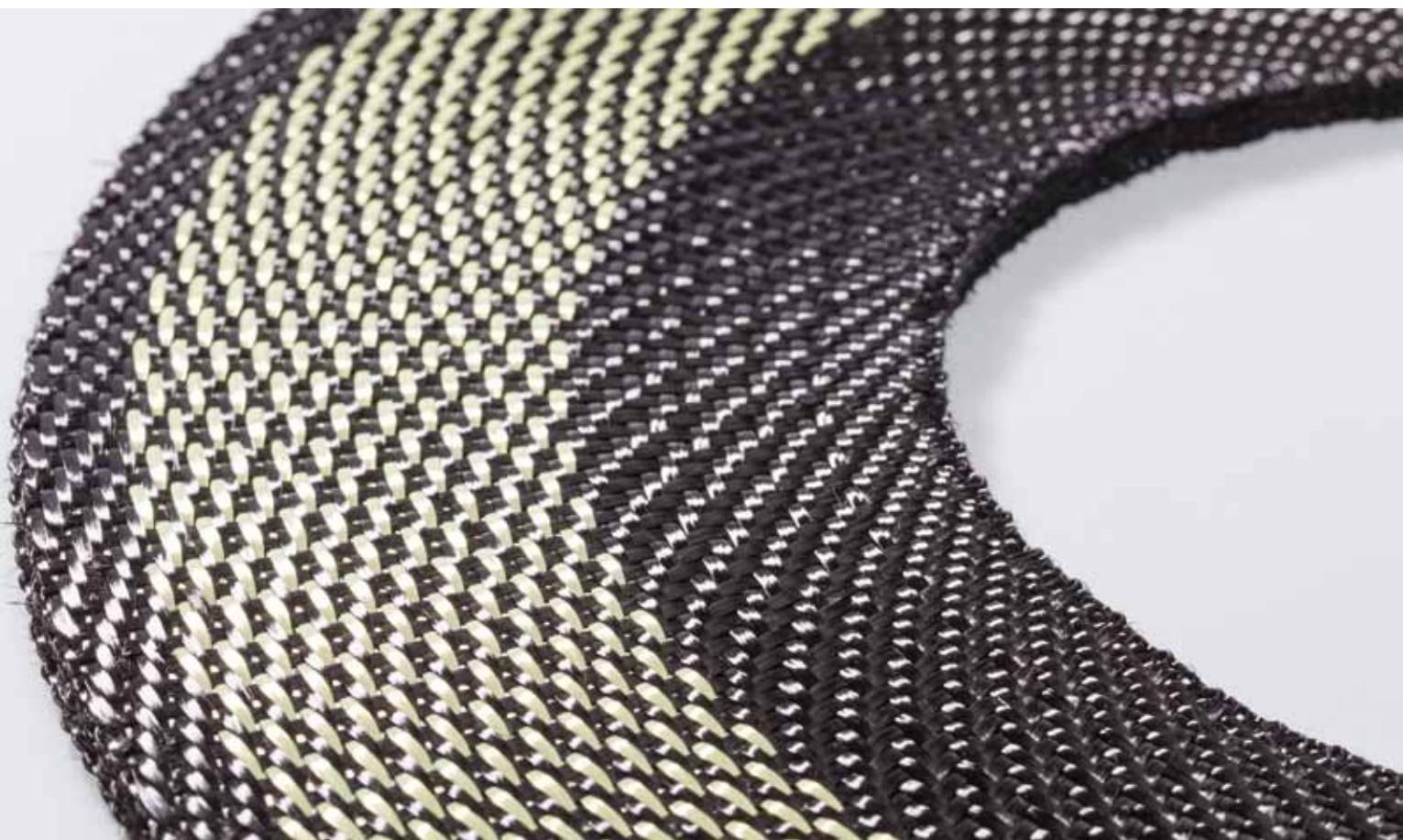


We process diverse fibres such as carbon, glass, aramid, PA6 and basalt. Ribbons and tapes can be reinforced with metal monofilaments, functionalized with conductive yarns or coated with an epoxy.



## WOVEN SPIRAL RIBBONS FOR CURVED FIBRE-REINFORCEMENT STRUCTURES

Woven spiral ribbons are an advantageous solution for lightweight and corrosion free brakes and grinding discs. Spiral ribbons are also used for the manufacturing of high performance fast rotating components of carbon, glass, aramid and other technical fibres.



The length and number of the spiral layers is adjusted to the batch thickness.

Spiral ribbons offer high performance solutions for automotive and engineering industries such as lightweight and corrosion-free brakes and grinding discs, robust fast rotating components and much more.



The round weave technique ensures the endless production of the spiral with no cutoff waste. The length and number of the spiral layers is adjusted to the batch thickness.

Spiral ribbons have outstanding robustness and dimensional stability owing to the return weft process and fibre orientation following the load paths.



## DRAPIX AND DRAPEX

### POST-DRAPABLE NON-CRIMP FABRICS

DRAPIX is a highly drapable non-crimp carbon fibre fabric for the efficient preforming of fibre reinforced composite assemblies. Because of its unique structure, the DRAPIX fabric easily takes the shape of the surface and therefore significantly improving the manufacturing process.



No draping failures such as overlaps and folders. Less cutoff waste.  
20 % costs reduction for composite assembly production!  
Drapix is perfectly processed by the automated preforming processes.



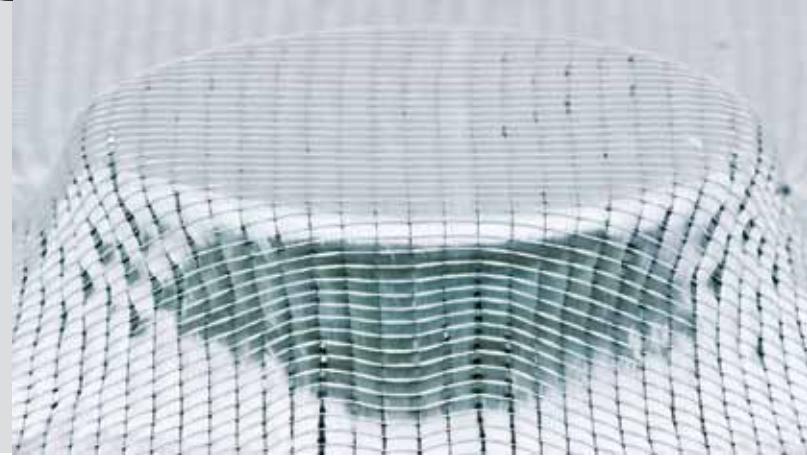
The advantages of our non-crimp fabrics are excellent drapability, cuts are unnecessary and easy processing in prototyping and mass production.

DRAPFIX is a beneficial solution for fibre-reinforced composites for automotive, aerospace, construction and engineering applications. Our fabric was even applied in the futurist KTM X-BOX GT Black Edition car.



DRAPTEX is a post-drapable non-crimp glass fibre fabric with a gap-free surface. The technical specifications of the fabric such as surface weight, width etc. can be adjusted to specific requirements on demand.

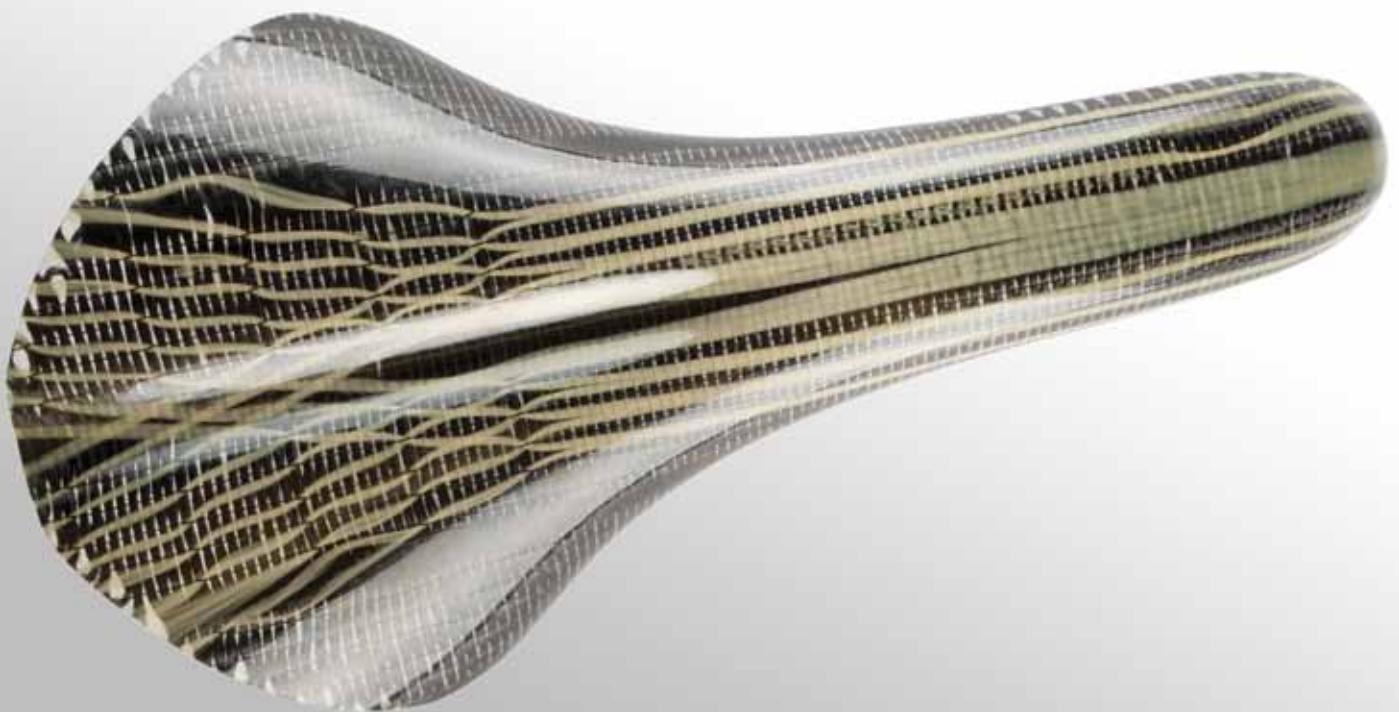
The flexibility of the fibres within the fabric structure ensures the outstanding drapability. For this reason, DRAPFIX can be perfectly applied to any complex shape as a local reinforcement.



## PREFORMS

### FOR SUPERIOR STRENGTH AND LIGHTWEIGHT APPLICATIONS

We develop and manufacture two- and three-dimensional preforms of a great variety of shapes, structures and properties by multiaxial and weaving technology for the most challenging applications. The preforms can be also implemented as closed-shape textiles (hoses) and supported with a structural core for a better performance. All of our preforms can be further processes by RTM, vacuum infusion or pultrusion process.



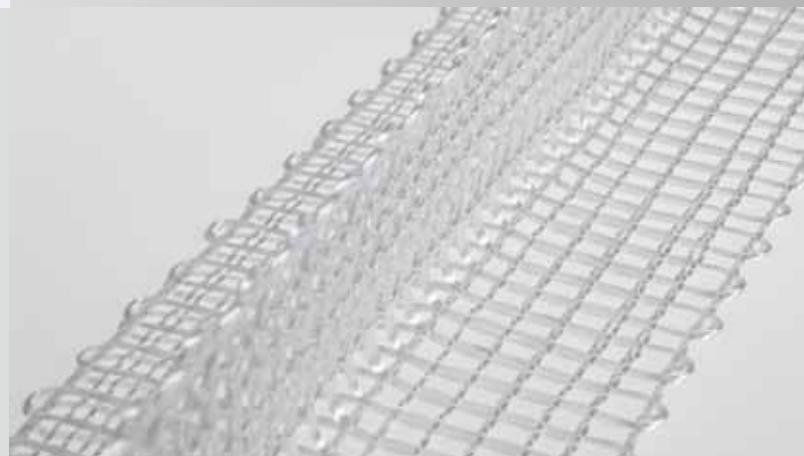
The most sophisticated preforms with the high accuracy of fibre placement and optimized load distribution can be achieved by our knitting machines

We deliver custom-tailored and cost-efficient solutions for automotive, windcraft, ship building, sports equipment, construction and many other engineering industries.



Our preforms are cost-efficient solutions for the manufacturing of three-dimensional construction elements. The tube-like preforms can also incorporate a supporting core.

We offer our know how and expertise to implement diverse profiles of L-, T- and double T-shapes of glass, carbon and other technical fibres.



## SHAPE-RIBBONS

### PERFECT SOLUTION FOR CARS, TRUCKS, HELICOPTERS AND AIRPLANES

Shape-ribbon is our award-winning product for the implementation of fibre-reinforced frames for automotive, transportation and aircraft applications. The round weaving technique enables cost-efficient production of high-performance S-shapes from carbon, glass and other technical fibres with no cutoff waste. Shape-ribbons can be implemented as a multi-layered preform or a hybrid textile.



This solution especially benefits composite assemblies that are loaded dynamically or have high mechanical requirements!

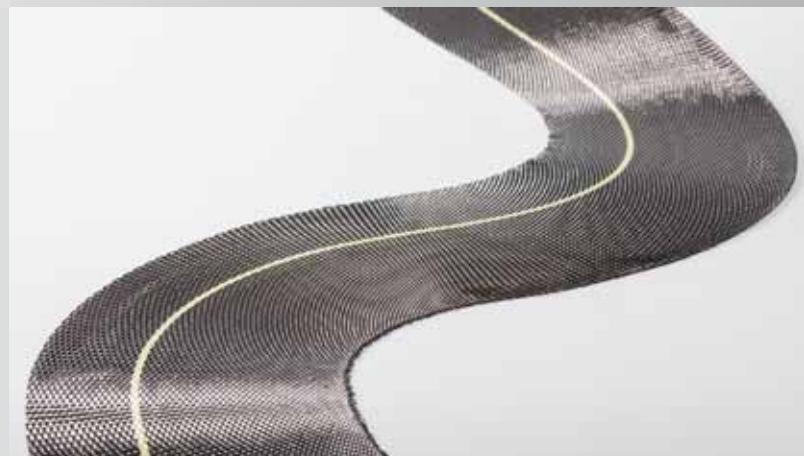
Gerster TechTex shape-ribbon is a beneficial solution for applications such as vehicle and door frames. The arrangement of fibre directions and the curvatures of the ribbon can be individually designed and then applied in one piece as a reinforcement or construction element.



The shape-ribbon preform can consist of one layer or be manufactured as a multi-layered batch. The weaving pattern and weight per unit can be specified individually.



The shape-ribbon can be produced as a closed shape over the complete length or only in specific sections. The width of ribbon remains constant, while the shape of the curvatures can vary.



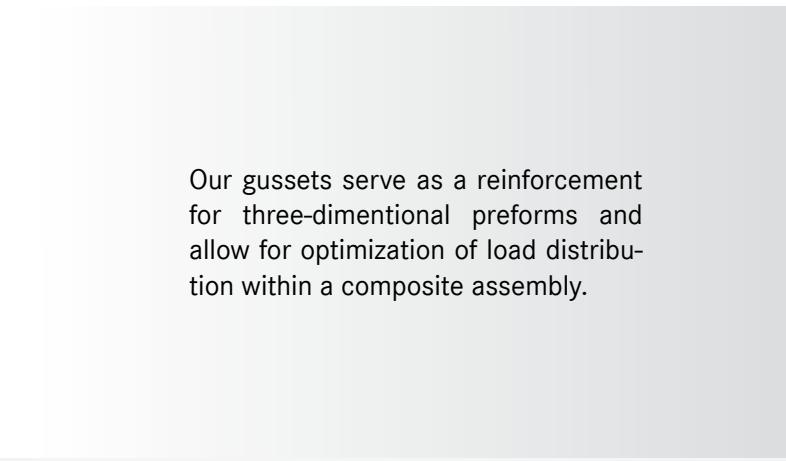
In 2016 the shape-ribbon was awarded AVK Innovation Prize.

## GUSSETS FOR PREFORMS AND EDGE REINFORCEMENT

We produce a great variety of gussets from carbon, glass and other technical fibres. Our manufacturing facilities offer the flexibility and diversity in gusset configurations and design. These can be produced with additional trims, user-defined diameters and then easily processed into a preform.



Our gussets are easy to apply and configure and obtain the proper distribution of forces in a composite assembly!



Our gussets serve as a reinforcement for three-dimensional preforms and allow for optimization of load distribution within a composite assembly.



As an example, three twisted carbon cords can first be produced and then joined together by crochet technology. The cord in the middle has a greater diameter than the other two. This structure enables perfect fitting of the gusset to the angle connection.

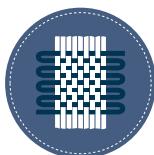


We have a broad range of standard products in our portfolio. Furthermore, we offer the opportunity of rapid prototyping and customization of the gusset structure and diameter.



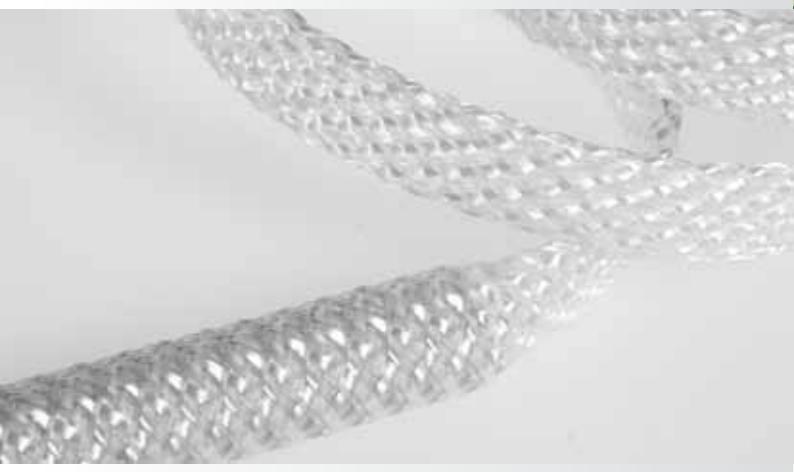
## WOVEN AND BRAIDED HOSES FOR MECHANICAL AND THERMAL PROTECTION

Our woven and braided hoses of carbon, glass, aramid and polyester fibres is a very good solution to protect tubes, pipes and other types of cavities from mechanical and thermal loads. Whether woven or braided, our hoses have an outstanding performance and benefit the safety features in a great variety of applications!



We also produce elastic hoses that can be perfectly adjusted to pipes and tubes of the most complex shapes!

The most of our technical hoses are supplied to the composites market for constructional element insulation and protection.



Our technologies and know-how enable the implementation of linear and curved hoses!

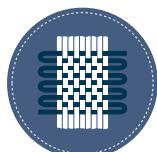
We offer individual design with no limitations in material choice and construction.



## NFW® NONFLAMMABLE COMPOSITES

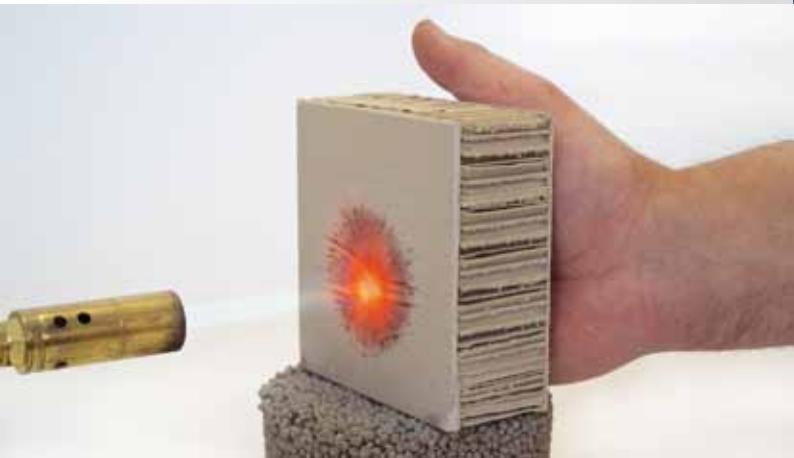
### FOR MARINE, AUTOMOTIVE AND CONSTRUCTION

NFW® is a nonflammable heat resistant material developed from the special type of woven glass fabric and ceramic matrix. This hybrid fibre-reinforced material is certified for DIN EN 13501-1 standard and meets the requirements for A1 construction materials. NFW was sucessfully developed together with our partner Keraguss, the expert for nonflammable processing of fibre reinforcements.



Have you had a coffee at the Düsseldorf airport? This restaurant is fully built with our NFW® material!

Due to its outstanding performance and unique properties, NFW is an excellent material for ship, railway, construction, construction and the automotive industry.



NFW® has a temperature resistance of up to 1000° C, has no smell and does not drip.

The specially produced glass-fibre textile is laminated with the flammé-resistant resin by Keraguss that hardens at room temperature. The hardening process can be speeded up by applying higher temperatures.



## HEATING TEXTILES

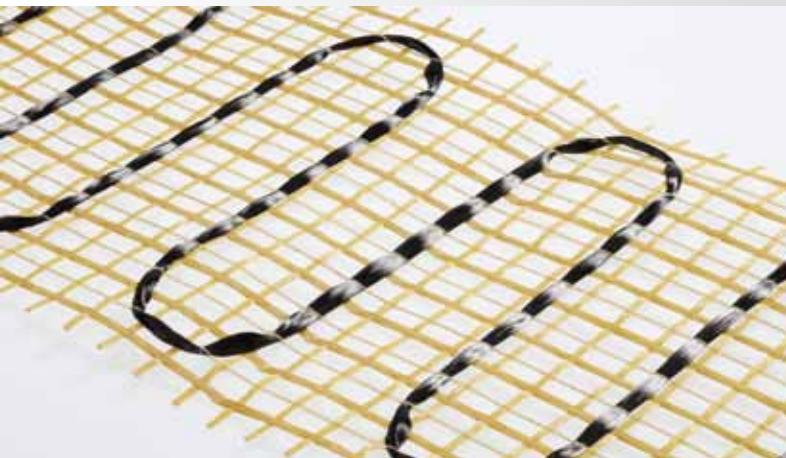
### FOR COMPOSITES, CONSTRUCTION, TRANSPORTATION AND MEDICINE

Our technologies enable diverse scenarios for heating textile development with unique designs and precise fibre layout. Variability in material selection and structures provides vast opportunities to deliver efficient solutions for complex and challenging tasks. Short heat-up time, uniform temperature distribution and heat radiation, excellent drapability and reliability are the aspects that describe our heating textiles.



We can also process insulated heating cables for high-efficient and robust solutions.

The applications are heating of composite assemblies and construction elements, de-icing of hoods, wind power blades, trucks, trains etc. Our heating solutions also protect one of the most beautiful and famous of Europe's castles- Neuschwanstein!



Heating conductors can be implemented on technical grids, nonwoven textiles and fabrics. Our technology facilities offer the opportunities to produce elastic and multi-layered heating structures.

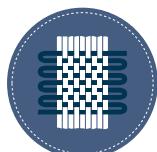
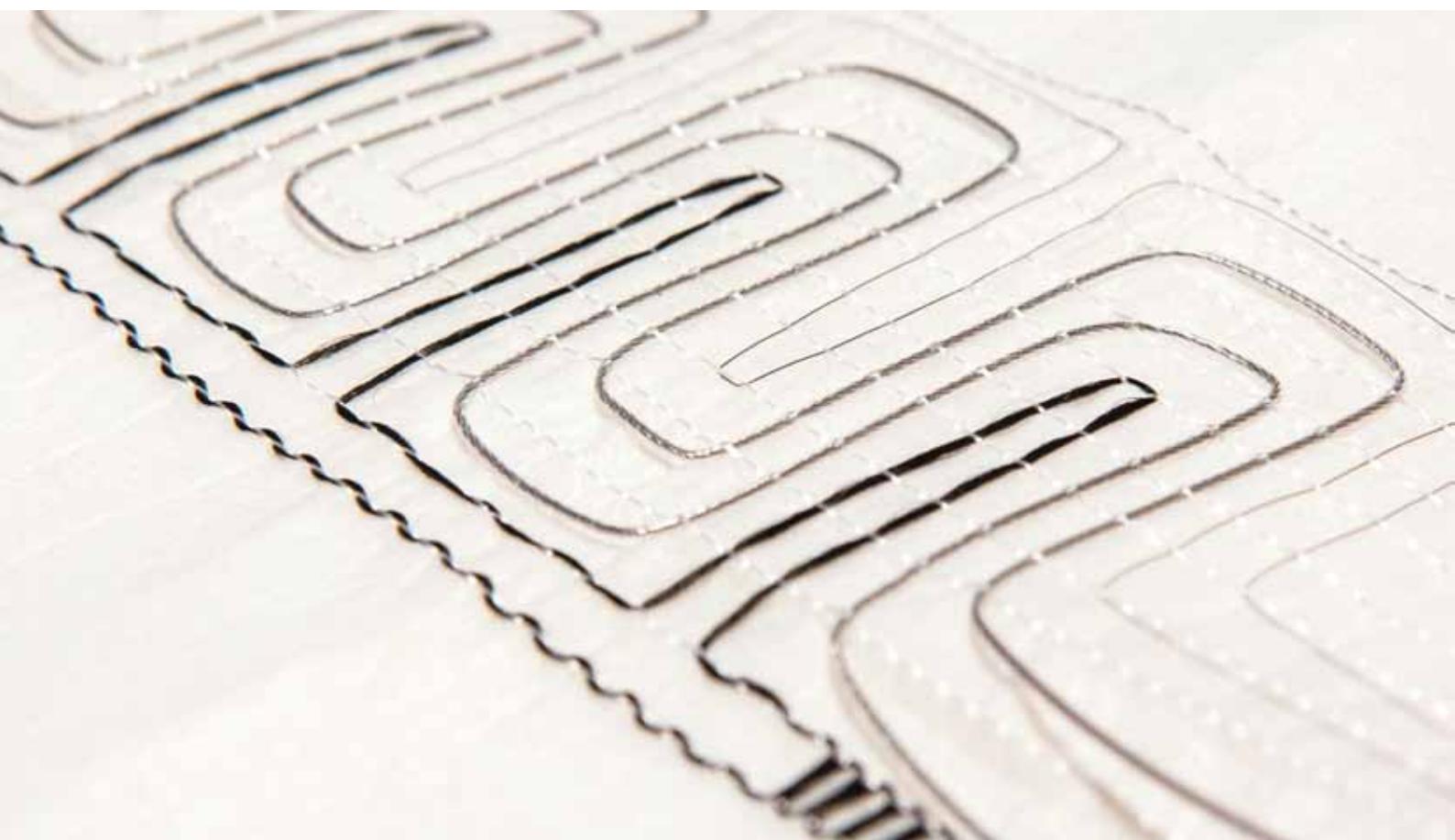
Due to good thermal conductivity and heat resistance, carbon fibres are a perfect material for a heating medium. These also enable excellent drapability and individual fibre layout.



## TEXTILE SENSORS AND ACTUATORS

### FOR SAFETY AND PROTECTION, HEALTHCARE AND INTERACTIVE DESIGN

Sensing, interacting and connecting are the features that lend conventional products enhanced safety, comfort, efficient energy use and correspond with modern trends in technology and society. We offer our customers the ability to integrate additional functionality into conventional products and introduce novel high-competitive solutions to the market. Our experience and know-how include the development of different textile sensors and interfaces, lightening textiles and textile wiring for electronics integration.



Our technology cluster enables solutions from twisted yarn-based sensors to knitted and embroidered large-scale antennas.

Since 2017 we develop and supply advanced solutions for a wide range of applications including mobility and automotive, structural health monitoring in composite materials and buildings, assisted living and smart clothing.



For sports and healthcare markets, we have developed electrodes with enhanced moisture transport and excellent haptics, strain sensors and textile switchers. For high-value design and safety products, we offer comprehensive experience in integrating light functions into textiles and developing adaptive systems.

For technical applications, we offer a variety of textile-based solutions for humidity, temperature, pressure, load and deformation assessment. Most of these are implemented using conductive and semi-conductive materials.



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