tissa+ TEXTILES

Reinforce your innovation with taylormade woven fabrics

Our Business

- Tissa Textiles processes technical yarns of Glass, Carbon, Aramid, Basalt Polyester, Polypropylene, Dyneema or Zylon into special-purpose fabrics customized to our customers needs
- On demand we impregnate and finish the fabrics according to the individual requirements of our customers
- Thanks to almost 150 years of experience, trustful cooperations with customers and suppliers, and our excellent networking with cantonal, national and international Universities and Research Institutions, Tissa Textiles offers high quality and innovative products to the market

Our Vision

With innovations, flexibility, capital discipline and continuous improvements, Tissa Textiles will develop and grow hand in hand with our customers

We operate globally and communicate open and honestly with our customers, suppliers and employees

Our Mission

Tissa Textiles serves speciality applications across a broad range of end markets with customer specific solutions, based on high quality technical woven fabrics

Each special demand placed on a special project or a particular product requires experience and knowledge to find unique solutions

Tissa Textiles is highly customer focused by providing fast response, flexibility and on-time delivery

Our Values

Responsibility: We are a family-owned company and take our social, economical and ecological responsibility very serious

Customer focus: With a singular focus we constantly support our customers with our experience and help them to be successful

Mutual respect: We treat customers, employees and suppliers with the upmost respect

Talent: Employees are our most valued resource and we develop them specific to their skills

Celebrate success: We are proud of our achievements

Our History

In 1872 a cotton weavery started a new production in Oberkulm. This subsidiary is the place where the Tissa Glasweberei AG has its roots

Tissa Glasweberei AG was founded by Ernst Schneeberger-Gall and his two sons

Successful development of unidirectional roving fabrics for sport industry

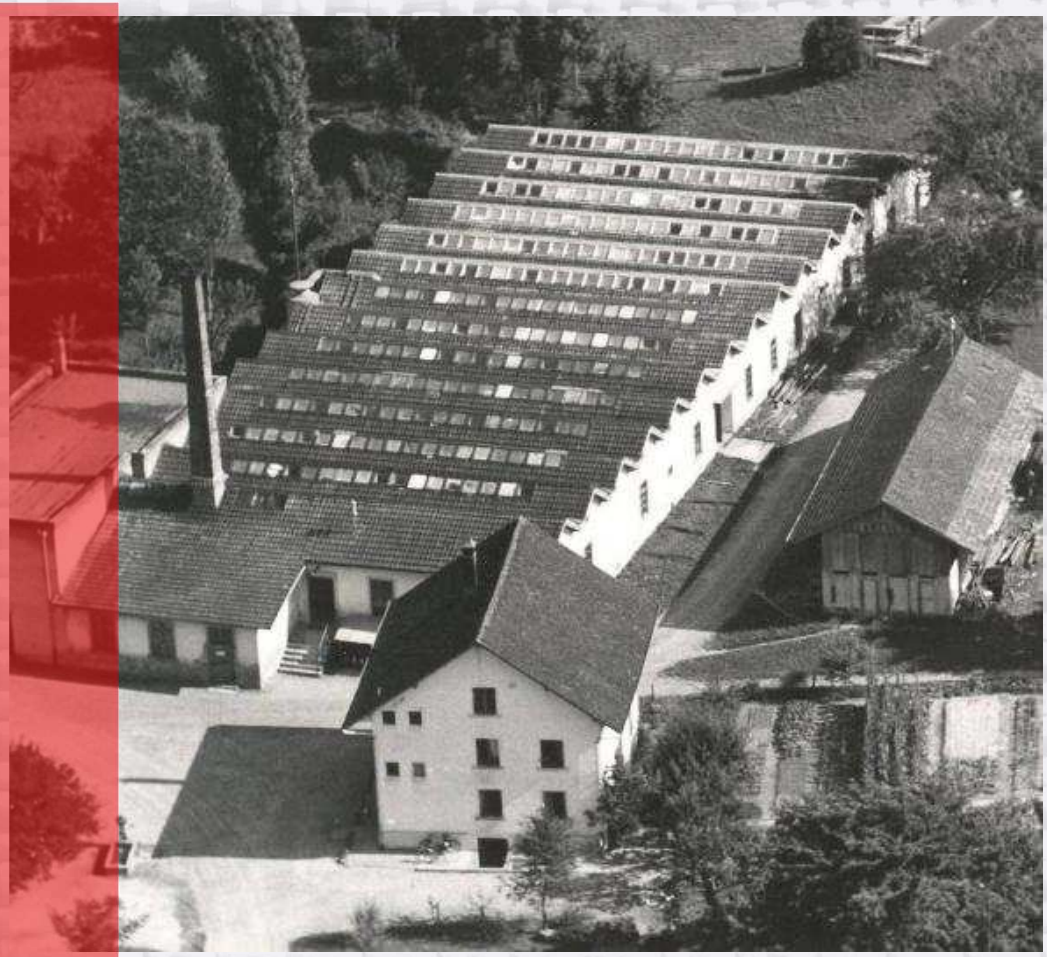
Entry into the international grinding wheel business

With a stronger focus on customer needs and to specialize in technical fibres the company split up into Tissa Textiles and Tissa Imcut

Expanding the production, Tissa Glasweberei AG started a new production site in Gornji Vakuf-Uskoplje (Bosnia)

Today Tissa Textiles is a specialized development partner for various woven fibers The company is still owned by the family Schneeberger

1872
1963
1975
1983
2011
2015
Today



Our Key Capabilities

Testing (Processes & Materials)

In cooperation with our customers we develop fabrics according to the requirements of the application. This includes planning of first samplings, searching for right raw materials and testing different production methods

Sampling

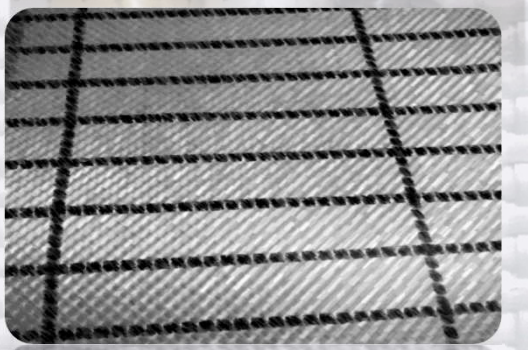
Our customers will get samples specific to their individual requirements. Sampling services include one specific sample or a series of samplings based on customer needs

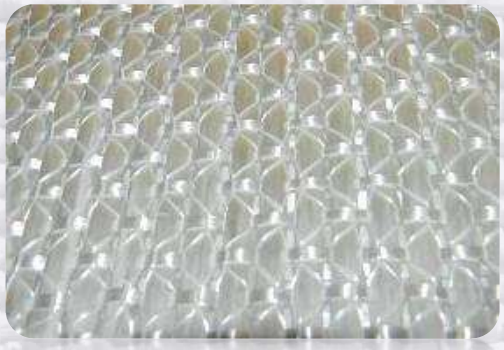
Industrial Production

TISSA TEXTILES is the right partner to industrialize various fabrics that can be scaled up from small quantities to serial production with the highest production and quality standards within the industry

Fibres for Our Fabrics

- Glass (Thermoplastic/Thermoset)
- Carbon
- Aramid
- PES/PA/PP
- Zylon
- Biodegradable Fibers
- Recycled fibres





Our Products

- Multilayer fabrics
- Roving fabrics
- Carbon fabrics
- Grid fabrics
- Glass fabrics
- Unidirectional fabrics
- Non-crimp fabrics

Our Markets

Our Markets – A Few Examples

Lightweight Transportation

Our woven fabrics are used in a wide range of lightweight applications

Reinforcement of FRP- and honeycomb-sheets (both, thermoset & thermoplast) are just one of our specialities on these markets

Our Markets – A Few Examples

Marine and Recreation

We are serving these markets with Glass-, Carbon-, Aramid- or even Hybrid-Fabrics for their composite and lightweight solutions

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Our Markets – A Few Examples

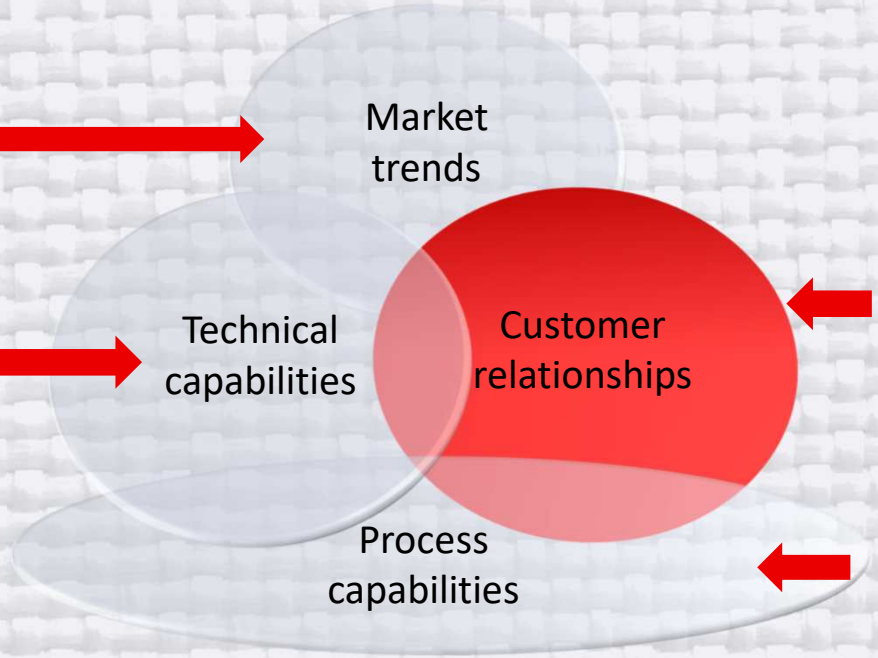
Sports & Leisure … and Wind Energy

With our experience and innovative products we are supporting new trends and projects on these markets

Differentiate through innovation – We are your partner !

- Constantly evolving and industry specific

- Material science
- Process knowhow
- Manufacturing development



- Strong relationships enable collaborative approach
- Deep understanding of objectives
- Customer support for projects

- Execution focus
- More than 50 years of industry experience

We aim to provide the best value to our customers, based on products and operations that are innovative and taylored to customer specific needs

A Story of Success – Vantex

The Vantex Project

- In collaboration with the IWK (University of applied sciences in Rapperswil, CH) and various other partners, our goal was to build a composite part made out of Tissa's carbon non crimp fabric (CNCF)
- The challenge we faced with this complex structure was to modify the impact strength of the epoxy matrix with the help of thermoplastic fibres
- After many tests we developed a hybrid fabric (Phenoxy with Carbon fiber) providing excellent properties for RTM processes for a wide range of applications in the Composite Industry

A Story of Success – Vantex

- The advantages of this development include:
  - No disturbance of the load-bearing fibers
  - No ondulation, no puncture
  - Even penetration of resin
  - Excellent drapability
  - Carbon content up to 97 %
  - Light weight fabric

- The carbon type and fabric weight can be adapted to your applications. We have the capabilities to supply this great development to various markets (Aerospace, Automotive, Building Industry, etc.)

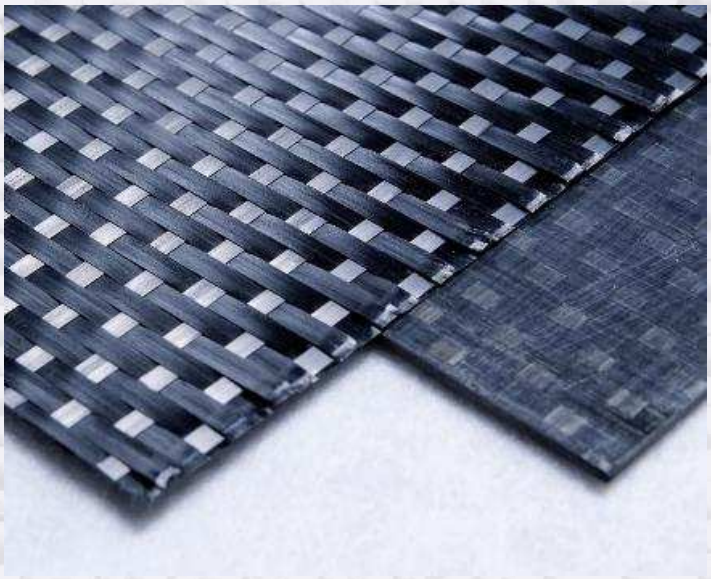
- With our culture of consisting learning and improvement we were able to gather more experience in weaving styles and with new products as the Grilon yarn (pure phenoxy fibers which dissolves in the resin)

Innovation for Aerospace – TIXPREF

- TIXPREF™ is the name of advanced thermoplastic composite prepregs made from thermoplastic unidirectional fiber reinforced tapes (UD-tapes). These tapes are made of carbon, glass or aramid continuous fibers, which are fully impregnated with PEEK. Only one consolidation step under heat is needed to bond the layers, which reduces the time and cost to manufacture. By heating up the prepregs and press forming to a thickness of 2mm a cycle time of 30s to three minutes is possible.
- TIXPREF™ fabrics are safe and easy to handle. Therefore, such prepreg fabrics are especially suited for automated processes as well as out-of-autoclave manufacturing methods. TIXPREF™ is tailored to use for parts that do not have complex-shaped geometries such as flat structures and panels, which will be mechanically machined. Also possible is the pressing and overmoulding to produce complex parts in one step.

TIXPREF – The Advantages

- TIXPREF™ fabrics using Carbon with Victrex® PEEK polymer arises the following advantages
- Short cycle time for press forming of the fabrics into composite parts
- Very good mechanical properties due to high fiber content up to 65%
- High fatigue strength and stiffness when compared with thermoset-based composites
- Easy to handle even in wide widths
- Continuous prepregs
- No loose carbon fibers
- Higher wear resistance under both static and dynamic load conditions
- Can be stored at ambient temperature
- Service temperature of up to 260°C
- Stable against hydrolysis
- Corrosion-resistant
- High resistance to chemicals and solvents



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Thank you for your attention!

Questions ?