

SPIRALLING FREEDOM

Continuous shape ribbon for production of frames

Gerster TechTex, a business unit of Gustav Gerster GmbH & Co. KG, has a strategic focus on reinforcement textiles in general and on near-net-shape preforms. Gerster TechTex strives to create textiles for more efficient processes in component manufacturing and for reduced waste cut. Newest product in this line is a continuous shape ribbon.

The new product shape ribbon aims at reproducing larger free-shape geometries in a continuous process. Larger preforms were not feasible to date. Typical structures are frames, doors, windows and local reinforcements of cabins (cars, trucks, trains, helicopters, airplanes), potentially also curved springs.

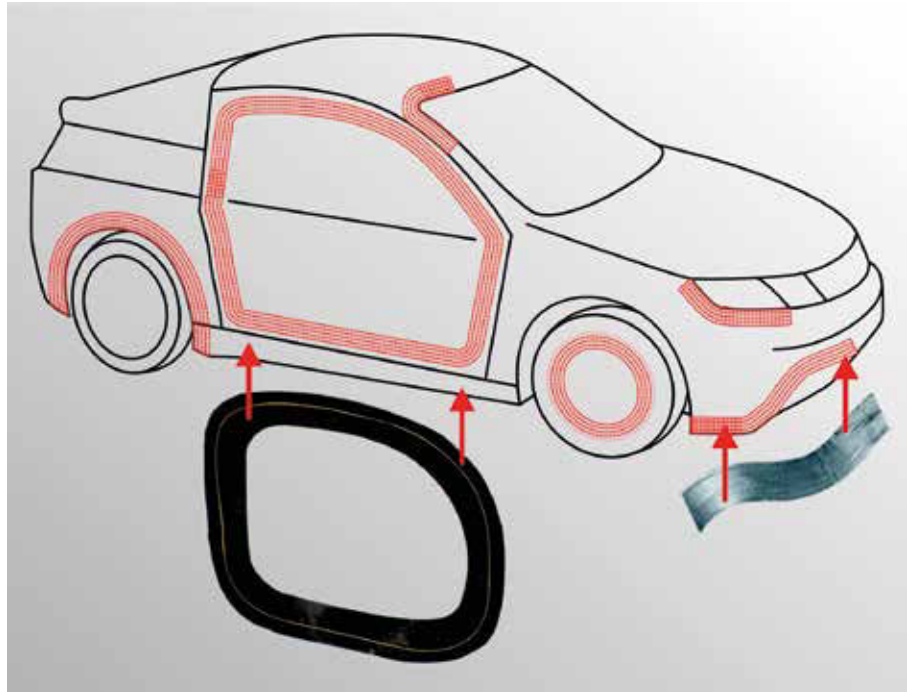
Woven ribbons

The weaving process itself is based on a newly designed textile machine based on ribbon weaving. Shape ribbons may be supplied in two ways, as closed frame structure, or as single free-shape coupons. A preform consists of any number of layers. Curvature can take any direction, also S-shapes, as component geometry demands.

Fibre orientation follows shape. A multi-layer shape ribbon preform consists of endless fibres following shape by 0°/90° orientation (or alternatively purely 0° or 90°), i.e. at the correct length fitting to the shape. These characteristics improve mechanical properties compared to pre-cut textile sheets, offer further potential to reduce component weight and make more efficient use of fibres, which is especially beneficial for carbon fibre products.

Multi-purpose fit

Edges are closed and defined. Weaving style may be locally adapted to improve drapability where needed. Both features help to enable an accurate placement into the mould without waste cut and simplify steps in automated production. The new shape ribbon makes a major contribution to increased manufacturing efficiency and specific use of fibre properties by its near-net-shape quality, optimal fibre orientation and endless fibres.



Application examples in automotive industry – ribbons can be woven directly to product shape

Further information:
Gerd Rauenbusch,
Business Unit TechTex,
Gustav Gerster GmbH & Co. KG,
Biberach/Riß,
phone +49 (0) 73 51/586-179,
gerd.rauenbusch@gerster.com,
www.gerster-techtex.com



Curvature of the continuous shape ribbon can take any direction, also S-shapes



Close-up of the woven ribbon structure