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Ref.: TK
29.05.2018

Project title:	**SoftTex – Development of a process for the production of flat, semi-impregnated glass fibre hybrid rovings**
Partner:	Stahlteam GmbH
	RPE Technologies GmbH
	Institut für Textiltechnik der RWTH Aachen University
Duration:	03/2018 – 02/2020
Funding agency:	AiF Projekt GmbH

Mission Statement

One of the core topics in the electrification of the automotive powertrain is the reduction of vehicle weight. The industry is increasingly relying on fibre-reinforced composites (FRP). Thermoplastic FRP combine high strength with low mass, adjustable damping and crash properties as well as numerous options for function integration.

Hybrid rovings in particular are used for the production of components with high form complexities and high material utilization. Hybrid rovings currently consist of reinforcing fibres and matrix fibres that are mixed together. The mixture of the reinforcing fibre and the matrix in a roving enables the use of conventional textile processes and machines (e.g. weaving, braiding, tailored fibre placement) for near-net-shape preform production. These preforms are consolidated into one component by using a heating press with forming tools.

A central deficit of the hybrid rovings available on the market is the high thickness of the rovings (200 µm to over 2 mm). These thicknesses lead to high fibre ondulations during processing in weaving and braiding processes. The fibre ondulation in turn leads to a reduction of the mechanical properties (up to 10 %). The full lightweight construction potential of hybrid rovings cannot therefore be exploited.

The aim of the SoftTex research project is to develop a highly productive production process for the manufacture of flat, semi-impregnated glass fibre hybrid rovings (SoftTapes).

The flat yarn cross-section reduces the ondulations of the reinforcing fibres in the reinforcing semi-finished product (e.g. fabric, braiding) and thus in the final FRP component. As a result, significantly higher mechanical properties can be achieved with the innovative SoftTapes (up to 10 %). This has a

positive effect on the mechanical properties as well as on the cost profile of the fibre composite components (thinner components, less material required).

Acknowledgement

We would like to thank the Federal Ministry of Economics and Energy (BMWi) for the financial support of the research project "SoftTex" within the framework of the funding program "Zentrales Innovationsprogramm Mittelstand - ZIM" (ZF4018794BL7).

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