New developments in the field of NCF technology –
Current status and their use in new applications

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INTRODUCTION

Multi-axial, multi-ply fabrics, better known as Non-Crimp Fabrics (NCF) have been used successfully in a wide variety of fibre reinforced plastics for approximately two decades now. The biggest markets are the wind energy, marine and sports industries, as well as transportation and infrastructural applications. The use of NCF in the aircraft industry is also steadily growing.

The market share of these fabrics has increased significantly during the last years compared to other textile reinforcement structures. Nevertheless, there are numerous applications and potential markets where NCF are not used yet, which is – apart from other reasons – due to the lack of knowledge about the specific properties of these fabrics and their impact on design, production and possible financial benefits for the end-producer.

ABSTRACT

An analysis of the possibilities of near net-shape NCF preforms shows the potential of offering a vast variety of constructions and tailored reinforcements, but also a way for cost savings and production efficiency. With the goal to produce fabrics of highest quality to the specifications and design of its customers, SAERTEX provides an important step in providing an innovative solution for advanced composite structures with improved mechanical and stiffness properties. The end result is a light-weight solution with significantly reduced manufacturing cost.

SAERTEX has realized a number of innovative developments exclusively or with partners. One specific example is the SAERtow technology, which has enabled access to new markets and product applications. Using this advanced process to increase product quality when spreading and processing large tow yarns; SAERTEX was able to qualify Carbon-NCF within the automotive industry for highly stressed parts. This market penetration was achieved due to this breakthrough technology, as well as a steady improvement of machine and process technologies and an optimization of the productivity of the machines and processes for high volume production.

Additional value adding processes developed for a variety of markets include cutting of tapes or kits, coating of NCF products and the development of image processing for quality assurance purposes.