**Fraunhofer PAZ and KraussMaffei Berstorff start UD tape line**

The new line for the production of UD tapes at the Fraunhofer Pilot Plant Center for Polymer Synthesis and Processing PAZ in Schkopau stands out for worldwide unique processing performance and speed. The line developed in cooperation with machine manufacturer KraussMaffei Berstorff opens up an impressive range of new applications in lightweight construction. The official start-up of the UD tape line is scheduled for 3 May, 2018. However, interested visitors to the JEC World 2018 in Paris from 6 to 8 March will be given the opportunity to obtain advance information about the outstanding efficiency of the new line.

UD tapes are composed of unidirectionally aligned reinforcing fibers (e.g. made of glass or carbon) embedded in a thermoplastic matrix. During further processing, the tapes are placed upon each other and fixed so that the fibers are (unidirectionally) oriented in load direction to ensure perfect adaptation to the specific load conditions the components are subjected to. Additional layers can be integrated at those points of the component that are exposed to particularly high stress. This optimum combination allows the specific requirements in terms of strength and rigidity to be achieved at a substantially reduced component weight. In some areas, the properties of UD materials even outperform those of metal.

The laminates composed of several UD tape layers offer enormous benefits for processing: thanks to their high load-bearing capacity, they can be used as engineering material for a wide range of new component geometries. They are suitable for thermoforming and additional functionalities or components can be integrated by recoating, which results in hybrid material solutions. Compared to other production methods for fiber-reinforced plastic components (FRP), UD tape materials stand out for shorter production times, faster pre-preg processes and higher recycling potential than thermoset solutions.

»With the launch of the new line, Fraunhofer PAZ will have the largest melt-impregnation line worldwide, offering unparalleled potential for lightweight developments in the years to come. Together with KraussMaffei Berstorff as our strategic partner, we set new standards in the production of load-bearing lightweight components,« says Prof. Ralf B. Wehrspohn, Director of the Fraunhofer Institute for Microstructure of Materials and Systems (IMWS).

UD tapes are produced by melt wetting endless fibers that are guided under tension over a spreading system in order to obtain a thin fiber bed of ideal homogeneity. The fibers in the fiber bed are wetted with the matrix polymer over a maximum width of 500 millimeters. In the course of further processing, the tape is cooled and the edges are trimmed before the material is wound up on rolls. The laminates built up in several layers to organic sheets can subsequently be used for hybrid processes.

»The UD tape line is rated for a production speed of up to 20 meters per minute at processing temperatures of up to 350°C and offers unique options as well as a wide width spectrum. Narrower tapes, for instance, can also be produced on this line by using an inline cutting system. With this innovative processing technology, we tap a completely new market segment and further enhance our competence,« says Matthias Sieverding, President of the KraussMaffei Group.
Extrusion Segment.

Prof. Peter Michel, Head of the Polymer Applications Business Unit at Fraunhofer IMWS, also emphasizes the outstanding flexibility and speed of the new line: »Owing to our close cooperation with KraussMaffei Berstorff, we can offer our customers a wide range of variants in the production of unidirectionally reinforced thermoplastics. In addition to highly efficient fiber impregnation, the unique tool geometry also provides adaptable tape thicknesses, pressure gradients and impregnating lengths in the wetting tool.«

This technology is also suited for large-volume production – an extremely important criterion for the automotive industry, for instance. In this sector, the new high-performance lightweight materials based on UD tapes will contribute to reduced vehicle weight and thus to a decrease in pollutant emission. On 3 May, the official start-up of the line will be celebrated in Schkopau together with KraussMaffei Berstorff and guests from industry, science and politics. In-depth information on the line will be provided by KraussMaffei Berstorff and Fraunhofer PAZ at JEC World in Paris (6 - 8 March) and at NPE – The Plastics Show in Orlando (7 - 11 May).


The KraussMaffei Berstorff UD tape line at Fraunhofer PAZ opens up new dimensions in terms of processing speed and width range.