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Composites Europe 2012: Automated processing is the topic at the Composites Forum

Dieffenbacher, Hennecke, KraussMaffei, Siempelkamp – where the automated processing of composites is concerned, one can not pass by these leaders in the industry. All four companies are pioneers in the development of efficient, innovative production technologies and relevant plant engineering, which is increasingly replacing manual process stages and thus clearing the way for the mass production of components from fibre composites.

At **Composites Europe 2012,** which takes place in **Düsseldorf,** Germany, from **9 – 11 October 2012,** the four companies are represented not only as exhibitors with their latest developments. They are also actively involved in arranging the **Composites Forum,** in which interesting lectures will be presented in topic-specific workshops and exhibitor presentations and will inform visitors about the basics, trends and innovations where the various applications of composites are concerned. The programme that has been set up with the assistance of the **VDMA** focuses this year on the topic of "automation". Under the heading "Process stages towards mass production", the VDMA Composite Technology Forum will chair presentations on the topic. All presentations will be given in English.

Fully automated production of 3D preforms

“FRP-Preform technology – advancements in the fully automated preform process for complex parts” will be the contribution on the first day of the fair by **Matthias Graf,** Technical Manager at **Dieffenbacher.** The company has developed a Preform Centre for the fully automated production of 3D preforms from carbon fibres. With it, short cycle times are achievable during preform production. From the supply of the semi-finished textile of carbon fibre via the precise cut and application of the binder to the provision of the dry, dimensionally stabile 3D preform, the complete process runs fully automatically and with a reliable handling technique. The plant concept stands out due to its simple, modular design and is aimed at flexible use for large and small scale production of tailor-made preforms.

High pressure RTM process

On the next day, **Jens Winiarz,** Sales Manager at **Hennecke,** will handle the topic **"High Pressure meets lightweight".** The machine builder has developed a process engineering approach, which provides a response to the constantly growing demands where efficiency and ecology are concerned in the automotive sector. Compared with the classic RTM process, the new technology features a rapid injection of the reactive mixture into the cavity. This ensures extremely brief curing times and thus guarantees cycle time optimisation throughout the process. High quantities can thus be suitably achieved.

Economic production of components

The RTM process is also the topic of the presentation by **Erich Fries,** Composite Business Unit Manager, and **Sebastian Schmidhuber,** Lead Engineer R&D, at **KraussMaffei.** They will be talking about **"High-performance fibre composite parts – manufactured in an economically efficient way".** For example, the company has developed a modular concept, which illustrates the production of a CRP component in the HP-RTM process (high pressure - resin transfer moulding) with all operating stages over the complete process chain. This starts when assembling the fibres and producing the dry fibre preform, which is placed in a tool specially developed and produced by KraussMaffei. The concept utilises proven components and the benefits from mass production with injection moulding machines with which to develop application specific solutions.

Production of sandwich composites

"Siempelkamp press technology for high end composite production" is the title of the presentation to be given at the Composites Forum by **Dr. Michael Schöler,** Research and Development Manager at **Siempelkamp.** The company produces

handling systems and presses, with which sandwich composites can be produced automatically, for example rotor blades for wind power stations, whose half shells are currently still being stuck together by means of arduous manual work. The core material and the covering layer are combined and stuck together with these systems. Siempelkamp offers here both continuous as well as discontinuous processes.

These four examples demonstrate that Composites Europe has gained its reputation as an international technology exhibition for the industry not only through the presentations at the fair stands but also thanks to the supportive programme of events. Apart from the stated presentations, numerous well-known speakers, renowned companies and institutions, including **Dassault Systems, Mapal** and **CFK Valley Stade** will contribute additional topics.

Product Demonstration Area

With the **Product Demonstration Area (PDA),** the organisers of Composites Europe have established a special display area which has developed in recent years into the number one visitor attraction. Exhibitors present here live demonstrations of their new products and processes. Visitors can thus experience how innovations are developed. Automated production will also be the centre of attention here this year. Renowned participants have already agreed to attend. For example, **BÜFA:** The company presents the production of a GRP component in vacuum assisted RTM (VARTM) with the aid of the fully automated metering unit **BÜFAtec RTM.**

IKV Aachen intends to present 3D fibre spraying with thermoplastic hybrid yarns. With this process, three-dimensional near-net-shape preforms can be produced with locally adjustable characteristic profiles such as thickness or fibre orientation. **RH Schneidtechnik** will display the automated cutting of composite materials. The **Institute of Lightweight Engineering and Polymer Technology of TU Dresden** is represented at the Product Demonstration Area with textile-reinforced composite materials.

Composites Europe is organised by **Reed Exhibitions** in cooperation with the European industry association **EuCIA,** the VDMA Forum Composite Technology, the American association **ACMA,** the journal Reinforced Plastics and **AVK.** With 350 exhibitors and more than 7,000 visitors at the last event (2011), Composites Europe is the leading fair for the industry in Germany.

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