

KraussMaffei to highlight solutions for lightweight components at Composites Europe 2012

KraussMaffei is focusing on innovative lightweight components for its appearance at the Composites Europe trade show in Düsseldorf, Germany (hall 8b, booth D47) and presenting its cross-process expertise in machine and process engineering. The company offers customers competent support from a single source throughout the entire project phase, from component development, pre-batch production, and component testing all the way to series production and post-mould processing.

RTM method continues down path of success

The HP-RTM (high pressure resin transfer moulding) method has already proven itself in many applications for manufacturing composites with carbon fibres in pre-batch production and is now finding its way into large series. "With our expertise and high-quality machine technology, we are setting new standards in the automotive market," explains **Erich Fries**, Manager of the Composites/Surfaces Business Unit, in which **KraussMaffei** has combined its expertise over all lightweight construction technologies across the entire process chain and material systems. "Our systems are now in use by numerous major producers in the automotive and commercial vehicle industries, and we are brought into new developments very early on, since we can contribute to solutions at every step of the process chain."

Use of the HP-RTM method keeps gaining importance for series production in high-technology industries. Development of the method, however, is still long from being completed. The very complex requirements springing from required numbers of pieces, automated processes, affordable material costs, and the greatest possible weight savings for a component lead to many variants. As of recently, two methods known as compression RTM and wet moulding, each offering its own specific advantages, are available for HP-RTM. With wet moulding, for example, carbon fibres can also be recycled as piece goods (scrap from the preform manufacturing). Reliable partnerships are the prerequisite for efficient implementation in this respect. For example, as part of its cooperation with **Dieffenbacher GmbH**, KraussMaffei supplies complete systems which cover the entire production process from processing of the carbon fibres through to the ready-to-install, post-mould finished part.

KraussMaffei recently received an order from an Asian OEM for a complete HP-RTM manufacturing cell for the production of carbon-fibre-reinforced composites. The company supplies the metering technology, including mixing head, mould technology, and solutions for cutting the finished part. Components for fibre preforming and pressure moulding come from cooperation partner Dieffenbacher. According to KraussMaffei, this shows that resin transfer moulding is becoming a global trend and is not just limited to the European market.

Application determines material mix

Even today, many people still think of composites as carbon-fibre-reinforced components in an epoxy resin matrix, the classic carbon-fibre-reinforced plastic components, says KraussMaffei. For the company, however, this field is far broader. "Among reactive materials we also see polyurethane and cast polyamides as alternative matrix materials; among thermoplastic materials, polyamide and polypropylene have proven themselves," says Fries. "In this dynamic environment of development there is still no clear trend to be identified, but it is certain that the developments still have not been completed." Depending on the requirement for mechanical strength or the component cost, all more or less common fibre types come into question as reinforcement material.

Thermoplastic fibre composites fundamentally change cars

Step by step, fibre-reinforced components are being integrated into production vehicles today to build up the knowledge about composites systematically. Thermoplastics perform well here thanks to their short cycle times, weldability, and potential functional integrations, with which multiple additional functions can be brought into a component. Not only are thermoplastics getting better all the time as matrix materials, new production methods and even design principles are also opening up. "The transformation happening in the automotive industry as well as in aircraft construction and other industries could not be more thrilling," states **Martin Würtele**, Manager of Technology Development at KraussMaffei. The designers have to search for opportunities to achieve functional improvements using high-performance composites and designs appropriate to the materials."

For example, a load-carrying thermoplastic carbon-fibre-reinforced part – manufactured from a composite sheet – can have ribbing added to it in the injection moulding process, along with other integration and function elements. KraussMaffei is also offering an overview of fibre-reinforced composites at the ITHEC 2012 from 29 – 30 October 2012 in Bremen.

Adresse:

<http://www.gupta-verlag.com/polyurethanes/news/technology/12046/kraussmaffei-to-highlight-solutions-for-lightweight-components->