

THERMOFORMING AND ENCAPSULATING ORGANIC SHEET IN A ONE STEP PROCESS

Lighter weight for structural parts

Munich, June 8, 2010 – At the K2010, KraussMaffei will be showcasing a new production process which combines the advantages of thermoplastic injection molding with thermoforming intermediates reinforced with endless fiber. The framework concept “Research for Tomorrow’s Production” is supported with funding from the Federal Ministry of Education and Research (BMBF). In one of its projects, KraussMaffei, the only manufacturer worldwide with core competence in injection and reaction molding and extrusion technology, joined up with other industrial and research partners to develop a cost-effective method for the production of parts that are mechanically very stable. Target applications are in the automotive, transport and mechanical engineering sectors.

Using the new process to manufacture complex geometries produces parts with high strength and high energy absorption capability which are significantly lighter than comparable steel and aluminum parts. This makes them ideal as dynamically stressed structural parts in the automotive sector. Organic sheet is continuous fiber-reinforced thermoplastic sheet which is thermoformed and encapsulated on an injection molding machine. Manufacturing costs are far lower than for metal hybrid parts. At the K2010, KraussMaffei will be showing a complete, fully-automated process. In an in-line process, organic sheet from Bond-Laminates GmbH will be thermoformed in the mold and then encapsulated using a glassfiber-reinforced polyamide from Lanxess. A KraussMaffei 300-tonne injection molding compounder, based on the company’s CX series, is used to compound the encapsulating layer, mixing the different length fibers gently and thoroughly into the polyamide in a one-stage process immediately prior to injection.

The production system is the outcome of an application-oriented research and development project coordinated by Jacob Composite GmbH under the auspices of the Project Management Agency Karlsruhe (PTKA). Partners in this

KraussMaffei
Corporate Communications
Krauss-Maffei-Strasse 2
80997 München
Germany

Phone +49 89 8899 2592 / 4194
Fax +49 89 8899 3092
press@kraussmaffei.com
www.kraussmaffei.com

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intertechnology project were Jacob Composite GmbH, KraussMaffei Technologies GmbH, Audi AG, Lanxess, Bond-Laminates GmbH and the Institut für Verbundwerkstoffe GmbH. The mold to be used at the K2010 was made by Georg Kaufmann Formenbau AG.

KraussMaffei is at K2010 in Hall 15, Stand C24

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Contact for more information:

Matthias Andreesen Viegas
Manager Corporate Communication
Phone +49 89 8899 2592
Fax +49 89 8899 3092
matthias.andreesen@kraussmaffei.com

Andrea Dietl
Corporate Communication
Phone +49 89 8899 4194
Fax +49 89 8899 3092
andrea.dietl@kraussmaffei.com