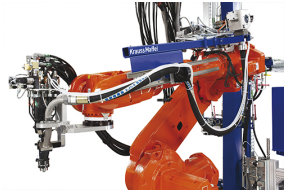


KraussMaffei: PU processing and more

The Munich-based machinery and equipment manufacturer KraussMaffei and Netstal will jointly present a comprehensive portfolio of products for fibrespray, extrusion and polyurethane processing including the innovative Fusion technology for the production of larger components.



The 4K spray mixing head

Greater design freedom with coaxial fibre injection

Launched in 2009, **Fiber Composite Spraying (FCS)** is the latest success story in series production, offering design freedom for large-format fibre composite parts, especially for commercial vehicles but there are many potential applications for FCS in the construction and furniture industries.

The reinforcing fibres are unwound from endless glass fibre rovings. They are chopped to the set length before being blown coaxially from a closed tube into a PU spray jet. With this system, it is possible to swing the spray jet up to 90° from the vertical and spray the PU/fibreglass mix onto vertical surfaces. The closed feed system minimises fibre flight during processing. Another advantage is that fibres are uniformly wetted with the PU mix. Coaxial fibre feed also means that the cutter unit need not be located directly at the mixing head. This makes access to the mixing head easier and results in a more compact spray head design. The FCS process can easily be combined with In-Mould Coating (IMC).

Multi-component mixing head for more options

The multi-component mixing head deployed in FCS processes opens up a range of options for the PU material systems being used. Multi-component technology makes it possible to process several different PU systems using just one mixing head. Compact layers can be combined with foamed systems, allowing even complex parts to be manufactured in a one-stage process. Multi-component mixing heads also allow UV-stable coatings made of aliphatic PU to be applied to parts made of aromatic PU. KraussMaffei's 4C spray mixing head makes it possible to process different PU systems with one and the same mixing head, opening the way to many more potential applications.

Continuous PU processing on double-band systems

Apart from systems for conventional sandwich panels, there is a growing demand for multi-purpose systems capable of processing not only PU and PIR foams, but also mineral wool. Another growth market is sandwich panels with flexible facings for insulation in the construction industry. Critical for precision production of the sandwich panels is synchronised horizontal movement of the upper and lower belts. With double belt systems, the polygon effect causes periodic fluctuations in the speed at which the slats move. KraussMaffei equipment minimises these fluctuations on its double belt systems. Supported in a stable, high precision frame the two bands maintain their parallel feed and avoid sagging. Effective temperature control of the process is achieved using water as the heat transfer medium. Belt temperature can be raised to 90 °C without problems, so that the system can also be used to process PIR foams.

Technology fusion facilitates multi-component moulding

KraussMaffei will be demonstrating a fast track route to producing the new generation of multi-component products through its technology fusion solutions. The company offers manufacturing cells that integrate injection and reaction moulding and automation in perfectly tailored solutions. They enable processors to produce multi-component parts with enhanced functionality, locally optimised haptics and a wide range of premium surfaces.

MX machines jump to injection moulding plus PU processing

KraussMaffei's **MX** series of large, high-performance machines are well-established in the market. MX machines combined with

swivel plate technology (**SpinForm**) are ideal for mass production of large multi-component products. The optimised plate geometry of the two-plate clamp ensures the highest level of precision and a highly dynamic response. This makes for exact, parallel-plate mould closing, even with heavy multi-component moulds. At the K 2010, KraussMaffei will be showing an **MX SpinForm** manufacturing cell with an integrated reaction process producing complex three-components thermoplastic/PU composite parts in a one-shot process. The **RimStar MiniDos** metering system uses newly-developed pumps made by KraussMaffei.

BluePower has efficiency benefits for moulders

Fitted with energy-efficiency modules from KraussMaffei's **BluePower** package, the machine also offers an insight into options for reducing energy consumption in production to cut unit manufacturing cost even further. **BluePower ServoDrive** pump technology ensures high energy efficiency for the whole system.



The KraussMaffei plant in Harderberg, Germany, supplies systems for post-mould machining exactly tailored to product specifications, here for milling CFP parts

Post-mould processing systems

KraussMaffei will also be showing new developments in trimming and routing technology at the K 2010. One example is a modular robot milling cell, the **RoutingStar P**, built to a portal design. The overhead robot mounting enables the cell to process large-format parts up to 3000 x 2500 x 700 mm. The RoutingStar P can also process fibre-reinforced materials. Installed on a movable base frame, the routing cell can be moved quickly and easily using a crane or forklift truck. The **ABB IRC 5** robot control, with a KraussMaffei operator interface, can be expanded almost as required with additional linear axes.

KraussMaffei scoring systems with their patented cutter technology enable precision scoring of weakening lines on instrument panels without visible impairment of the surface. The process has significant cost advantages compared with laser scoring.

KraussMaffei also builds punches and here the company will be showcasing a newly-developed cutting blade/matrix combination. It produces a clean cut of unbonded non-wovens and textiles, which are often used for sound insulation in the automotive industry. Manual removal of punching waste is no longer necessary; waste is now removed automatically and collected centrally. The part leaves the punch ready for assembly. The process can be integrated in highly automated production; other major benefits are short cycle times, high repeatability, and low maintenance and service costs.

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<http://www.gupta-verlag.com/polyurethanes/news/k-2010/8842/kraussmaffei-pu-processing-and-more>