Lightweight exterior components in large-scale production – Hennecke at the JEC World 2016

Resounding success for Hennecke at the international composites show, the JEC World, that took place from March 8 to 10 in Paris: After the innovative lightweight roof with paper honeycomb core for the new smart "fortwo" captured the interest of the trade fair visitors last year, the roof modules produced by Webasto for the Jeep®"Renegade" now allowed the PU specialist to show that the exterior lightweight construction concept has established itself in large-scale production thanks to the Hennecke PUR-CSM PREG process.

Detlef Höhn, Sales Manager CSM Spray Technology of the Hennecke GmbH & Co. KG with the Webasto roof module for the Jeep® "Renegate"

Among others, the core competences of Webasto include the development and production of complete roof systems for automobiles. The automotive supplier clearly recognized the trend that future automobile roofs have to be light and made of innovative materials. Webasto leaves carbon material to other specialists and relies on more cost effective variants.

For the Jeep®"Renegade", Webasto developed a two-piece, opening roof system where the roof elements can be completely removed and stored in

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the luggage compartment. The outside surfaces are covered with a grained, thermoformed and weatherproof foil. The roof modules consist of a material mix of polyurethane, glass fibre and paper honeycomb, just like the lightweight roof for the smart “fortwo”.

This PU sandwich material is characterized by high stiffness but light weight, good 3D-formability and noise and thermal insulating properties. The weight saving compared to a similar steel component is about 50 percent. In contrast to traditional composite parts, the individual layers are not bonded in a complex, multi-step process, but produced in a single operation using PUR-CSM PREG system technology. This “one-shot process” is becoming more and more popular. Products are manufactured to be as close to their final contours as possible, and in terms of surface finish can be demoulded without requiring further processing.

Hennecke's expertise gained from more than 90 large-scale production lines for load floors and sliding roofs in paper honeycomb sandwich structure all over the world is being concentrated in this exterior sandwich component: high quality fibre composite components in mass production thanks to shortest cycle times.

Along with the roof module, Hennecke presented a further trend-setting automotive component that is mass-produced on a HP-RTM production line at AUDI AG in Neckarsulm. This component is a module of the B-pillar for sports cars with mid-mounted engine based on the Audi-MSS-platform. The process engineering combination of carbon fibres and epoxy resin is used as matrix component in the new AUDI R8 and the Lamborghini Huracán.

By combining high-pressure technology and the conventional Resin Transfer Moulding Process process (RTM) Hennecke has broken new ground in polyurethane processing technology and offers users the HP-RTM technology as a high-volume process variant with matching processing system.

In contrast to the classical RTM process, this new technology allows the reactive mixture to be quickly injected into the cavity. In combination with the right raw material system, this means that curing times are extremely short and optimized cycle times are possible for the whole process. This allows even high numbers to be produced in an appropriate way.

The Hennecke high-pressure metering machine of the type STREAMLINE is perfectly adjusted to the HP-RTM production parameters. The state-of-the-art processing system combines years of process expertise and innovative high-pressure injection to an optimally equipped overall system. All required functionality which is necessary for this forward-looking technology is already integrated in the HP-RTM mixheads. The mixheads, for example, possess an adapted injection block for the internal release agent component. Also, the HP-RTM mixhead of the type MN10-RTM presented at the fair can be optionally equipped with the post injection capability and thus provides an optimal mould filling up to the end of the process.

These components and other exhibits illustrate how the Hennecke specialists manage to combine state-of-the-art processing systems, long-standing process expertise and innovative high-pressure injection technology into optimally equipped overall systems with much higher performance than conventional metering machines.

Further information and public relations

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