

Class A+ surfaces

RAKU-TOOL[®] EI-2500 / EH-2973 from RAMPF sets new standards in RTM and resin infusion production processes

Grafenberg, August 29, 2016. Fiber-reinforced thermoset plastics are becoming increasingly important. In order to minimize energy consumption, the aim is to reduce the weight without this affecting the mechanical resilience. Consequently, more and more composite components are being used in the automotive, aviation, and leisure industries. With its new epoxy infusion system RAKU-TOOL[®] EI-2500 / EH-2973, RAMPF Tooling Solutions is setting new standards in surface quality and processing properties.

Unlike metals, high-performance components produced from fiber composites make even small- and medium-series production profitable – especially when using resin transfer molding (RTM) and resin infusion (RI). RTM is ideal for small- and medium-series production, while RI is mainly used for small series, prototypes, and molds.

Both processes produce components with excellent mechanical properties – with a typical fiber content by volume of around 50-60 percent – and a minimal variation in thickness. Complex geometries are also possible.

“The main advantage of the RI process lies in the high component quality, especially in terms of air pockets,” says Marcus Vohrer, Head of Application Engineering at RAMPF Tooling Solutions. “The RTM process scores particularly highly on process reliability and reproducibility. Occupational hygiene isn’t an issue for either process, because there’s hardly any contact with chemicals for staff,” he adds.

The advantages for users of the new epoxy infusion system RAKU-TOOL[®] EI-2500 / EH-2973, which was developed specifically for RTM and RI, are as follows:

- > **Top-quality surfaces:** Class A+ surfaces possible.
- > **Tg 138°C:** Post-curing at just 120°C delivers optimum temperature resistance.
- > **Excellent processing properties:** Ideal pot life for reliable processing, impressive degassing and flow properties under vacuum, good wetting properties, and the possibility of long flow paths – for a reduced set-up time, lower processing costs, and fewer pinholes.
- > **Curing at room temperature:** Good stability after overnight gelation (no brittleness), easy demolding without pre-curing or part deformation, and the part can be processed/finished straight away.

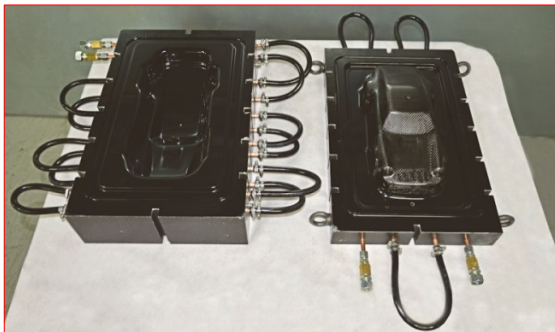
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The RAKU-TOOL[®] product range from RAMPF Tooling Solutions includes products for both RTM and RI production as well as a large selection of liquid, paste, Close Contour Casting, and board materials. Applications include modeling, mold engineering, construction of jigs and fixtures, and various production processes for lightweight composites, including prepreg autoclave, vacuum bag, wet lamination, and compression molding processes.



In the RI production process, the dry fiber composite package is inserted into the mold. Peel ply, flow aids, resin ducts, and vacuum channels are then put in place and the vacuum film is sealed. Once a constant vacuum has been established, the pressure difference causes the epoxy infusion system to be injected and the fiber composite package is impregnated.



In the RTM production process, the dry fiber composite package – also called the preform – is inserted into the multi-part mold. The mold is closed and a vacuum is created. Using a mixing and dispensing system, the pressure difference then forces the epoxy infusion system via one or more injection points into the mold, which impregnates the fiber composite package. Curing times and thus the number of production cycles can be reduced by heating. A mold heater is normally used for this purpose.

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RAMPF Tooling Solutions GmbH & Co. KG develops and produces board and liquid materials for cutting-edge modeling and mold engineering. The range of skills includes made-to-measure services and products such as pastes, large-volume and full-size castings for Close Contour models, and prototyping systems.

Based in Grafenberg (near Stuttgart), Germany, RAMPF Tooling Solutions is the world's largest producer of styling, modeling, and working board materials, which demonstrate excellent quality and the best mechanical properties.

High-quality Close Contour Pastes, Close Contour Blocks, and Close Contour Castings guarantee excellent and cost-effective solutions for modeling and mold engineering.

The company produces and develops pioneering systems for the composites industry that cover a wide variety of production procedures and a broad range of temperatures.

It goes without saying that RAMPF Tooling Solutions also provides expert advice, customer-specific service, and prompt technical support.

RAMPF Tooling Solutions is a company of the international **RAMPF Group** based in Grafenberg, Germany.

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