



# Multifunctional textile solutions for VAP®

Trans-Textil GmbH supplies membrane systems – the central component in the VAP® approach – for use in the respective membrane-assisted low pressure infusion work. The combination its membrane systems involve of air- and gas-permeable resin barrier plus sophisticated textile carrier enables a high degree of precision in the production of complex lightweight parts. At the same time each of its membrane systems is individually tailored to the specific process variables of gas permeability, barrier performance, heat resistance and drapability. Such forward-looking textile solutions for use in the VAP® approach will be placed on view at the upcoming JEC Composites Show.

## How Trans-Textil's VAP® membrane systems work

The semi-permeable membrane systems used in the VAP® approach feature pores that allow vacuum evacuation of air and volatiles trapped in the mould while keeping the resin in place.

In Trans-Textil's VAP® membrane systems, a barrier layer is bonded (laminated) to a textile carrier material in a perfect interplay of components and processing technologies for a product that yields precise control of the VAP® lightweight construction process. Trans-Textil's quality-assured membrane systems undergo testing for use with various different resin types and process variants and are enhanced and are developed further for new applications in close cooperation with EADS. In this, a broad portfolio of semi-permeable barrier layers and textile carriers as well as precisely-controlled production processes enable Trans-Textil to deliver solutions tailored to specific customer requirements.



## **Next-generation textile-based solutions**

Customised ready-mades and next-generation developments are continually expanding the range of applications-oriented uses to which Trans-Textil's VAP® membrane systems can be put. An example concerns its VAP® Strips, which it delivers in bespoke widths for use in the fabrication of edges and corners on complex integrated components.

Integrating several VAP® stack layers into one significantly facilitates handling in the production of lightweight parts, and is a feature of VAP® Multilayer. This product line features spacers in the form of small raised nubs, which are applied to the resin barrier by means of proprietary coating technology for optimum vacuum distribution, faster removal of trapped air and volatiles and reduced likelihood of handling mistakes. In other words, Trans-Textil's VAP® Multilayer not only saves significantly on time but also improves results.

Trans-Textil works with scientific partners and noted institutes within various research projects on developing extensive improvements and innovative solutions concerned with its VAP® membrane systems. The development of three-dimensional VAP® membrane systems shaped to fit the lines of specific structural components is the goal of the AZIMUT Project, one of the research efforts in which Trans-Textil is involved. The goal of the respective work is to develop customised solutions that facilitate handling in the production of lightweight components, whereby Trans-Textil's innovative joining techniques play an instrumental role in delivering the significant advantages concerned. As an expert in the production of textile systems, Trans-Textil is also involved in the CFK Integral Aviation Project, where it works with other partners on finding further means of combining VAP® stack layers into one for enhanced efficiency and ensured quality.