

# Tailored stacks Voith Composites

**We produce tailor-made net-shape stacks and preforms for your application.**

Voith Composites designs and produces customized and cut stacks for industries including automotive and aerospace. We support our customers throughout the entire product lifecycle, including the production of prototypes as well as the design, development and implementation of a series production line. We develop and produce dry and pre-impregnated stacks depending on our customers' requirements. Due to the high degree of flexibility, we offer cost-efficient tailored stacks almost independent from volumes starting at lot size one.

Based on our internally developed preforming technologies, we achieve near-net-shape fiber layup and reduce scrap to a minimum or eliminate it completely. After fiber placement, forming of the stacks can be realized by stamp forming or double-diaphragm process. We are able to handle different matrix systems according to your requirements.

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### VPW stack



Voith has developed various direct fiber placement technologies in order to avoid the traditional, cost-intensive preforming processes.

- VRA – Voith Roving Applicator
- VLP – Voith Longfiber Preformer
- VPW – Voith Prepreg Winding

The VRA is an innovation developed by Voith over the last five years. It is a fully automated direct fiber placement machine. It uses the most cost-effective raw material – untreated roving and binder material/powder – to generate a net-shaped dry stack within a fully automated preform production. VRA produces components efficiently including tailored fiber distribution and local reinforcements.

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### VRA stack



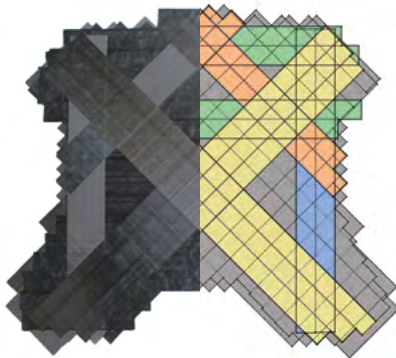
Our second generation VRA uses the same principles as described above but instead of applying binder, it applies resin directly. This leads to a further reduction of the process chain and makes handling of the stacks easier, especially when not processed within the same production line.

The additive Voith Longfiber Preforming (VLP) process is based on the fast and precise placement of fiber sections into two-dimensional sheets.

A very time-efficient way of producing stacks is realized with the VPW process. It feeds in several rovings, impregnates them with resin and then uses a winding process to develop plates that are molded and cured into 3D parts via a pressing process. Based on a two roving winding process, a stacking rate of up to 140 kg/h depending on the winding pattern can be realized.

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### Virtual stack



If required by our customers we also offer different curing processes:

- (High-pressure) resin transfer molding
- Wet compression molding
- Prepreg compression molding

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#### Certified according:

- ISO9001
  - ISO14001
  - EN9100 (pending)
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