

Media Release

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Voith Composites wins the Lightweight Design Award 2018

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Garching, Graz. VDI (The Association of German Engineers) and Carbon Composites e.V. jointly present the second Lightweight Construction Award in Graz, Austria. From July 3 to 4, 2018, around 100 experts from industry and science met in Graz, Austria, to discuss lightweight construction activities in Germany and worldwide. Strategies and concepts for the mobility of the future were the focus of the Lightweight Construction Congress of the VDI and the Competence Network Carbon Composites e.V. (CCeV).

Prof. Dr. Lutz Eckstein of RWTH Aachen; Prof. Dr. Hubert Jäger of TU Dresden; and Kwangsoo Kim von Kolon from Korea provided exciting insights into current developments, alongside colleagues Prof. Dr. Hermann Steffan of TU Graz and Prof. Dr. Jörg Wellnitz of FH Ingolstadt. Numerous industry reports showcased the latest lightweight design concepts, particularly from OEMs.

The highlight of the Lightweight Construction Congress was the presentation of the Lightweight Construction Award 2018 to the winner Voith Composites with the project "Highly efficient mass production of CFRP through innovative fiber placement." Together with Audi AG, Voith Composites with its production site in Garching/Munich realized for the first time a continuously digitized and automated production line for the manufacturing of CFRP structural components in large numbers. A CFRP rear wall for the new Audi A8 with an innovative direct fiber placement process, the Voith Roving Applicator (VRA), was produced in a fully automated production line.

In order to meet the high quality and cycle time requirements, robust preforming without gaps and wrinkles is essential. For the conception and design of the segmented stamp forming process used here, the partners developed their own highly efficient method for preforming simulation. For

the production of the CFRP rear wall, an optimized layer structure with 6-19 carbon-fiber layers was realized.

The VRA technology drastically reduces waste and thus material costs by depositing the carbon fibers close to the final shape. During the assembly of the metallic add-on parts, Audi and Voith developed and qualified a fully automated bonding without mechanical pretreatment of the joining partners' CFRP and metal. This new process saves production time and auxiliary materials. The innovative storage technology of the VRA also enables the economical production of small quantities – from batch size one.

Dr. Lars Herbeck, Managing Director of Voith Composites GmbH & Co. KG, accepted the prize on behalf of the team.

Other finalists were an Airbus consortium represented by Marc Fette, with the project "Lightweight gripper system made of fiber-reinforced plastics for universal robot and assembly applications," and MT Aerospace AG with the project "Hybrid Technology – positive connection of composites and metal for fuel transfer – without gluing or riveting," presented by Dr. Tobias Dickhut.

Once again, guided visits were offered in addition to the specialist program, in fact through Magna Steyr Produktion and the Virtual Vehicle Research Center in Graz. In parallel, a workshop on the subject of "Simulation in lightweight construction" was held. Various vehicle exhibits offered a hands-on, lightweight atmosphere. A program committee with representatives from Audi, BMW, Daimler, Porsche, TU Braunschweig/IWF, TU Munich and TU Dresden advised VDI on the implementation of the congress.



From left to right, Anne Bieler-Bultmann M.A. (VDI), Dr. Lars Herbeck (Voith Composites), Prof. Dr. Hubert Jäger (CCeV) Source: VDI Wissensforum GmbH



Voith production line, Garching Germany

About the company

Voith Composites is the R&D and production center of carbon fiber-reinforced composites in the Voith Group. Voith is a global technology group. With its wide range of systems, products, services and digital applications, Voith sets standards in the markets for energy, oil & gas, paper, raw materials and transport & automotive. Founded in 1867, Voith today has more than 19,000 employees and earns 4.2 billion euros in sales. It has locations in over 60 countries and is one of the largest family-owned companies in Europe.

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