

Camera system of Schmidt & Heinzmann wins AVK Innovation Award



Bruchsal-based company once again proves to be an innovation leader

Bruchsal, Germany, 06.12.2022: Schmidt & Heinzmann achieves 2nd place of the AVK Innovation Award in the category “Innovative Processes & Methods” with its newly developed camera system “Pole Position”. The system, which detects the positioning and orientation of carbon fibers, will be used in the automated production of CFRP components in the future. It will be integrated directly into the company’s cutting & stacking cells, which cut fabrics from dry fibers and consolidate the individual layers into a stack. The award ceremony took place during the “JEC DACH Forum” on 29th November in Augsburg, Germany.

Polarization measurement and new algorithm determine component contour of carbon fiber components

When cutting and stacking carbon fibers, it is crucial to know the position and orientation of the material, as these affect both a robust manufacturing process and part quality. Until now, position and orientation have been measured either with conventional camera systems or by using laser or color sensors. When using conventional camera systems, homogeneous illumination of the recording area is necessary due to the reflection of the carbon fibers, which is difficult to implement, especially with large components. Laser and color sensors only provide point measurements along the material edge. The uneven edges of the carbon fibers result in significant measurement errors, which also makes this technique unsuitable.

Schmidt & Heinzmann’s camera system takes advantage of the polarization properties of the carbon fibers, which means that the light reflection and absorption of the fibers are irrelevant. The system determines the change of intensity with respect to the polarization direction. This relative value can also be determined under changing lighting conditions. A newly developed software then separates the resulting image into polarized and unpolarized areas. This allows the background to be hidden and the component contour to be measured. With an accuracy of $\pm 0,38$ mm, the system performs significantly better than conventional systems with an accuracy of ± 4 mm.

Camera system significantly reduces the use of resource

When using the camera system, users benefit above all in terms of sustainability. Precise contour determination on the NC cutting table allows reduction of edge trimming by up to 85%. When stacking the cuts, the individual layers can be placed on top of each other even more precisely. This exact positioning is a prerequisite for producing preforms with final contour. Therefore, trimming of the components is no longer necessary in the wet compression molding process, for example, which saves 5 – 10% of the raw materials used (carbon fibers and resin). By eliminating the two process steps “trimming” and “sealing”, investment costs as well as energy costs of these sub-steps can also be saved.

Another innovation award for Schmidt & Heinzmann

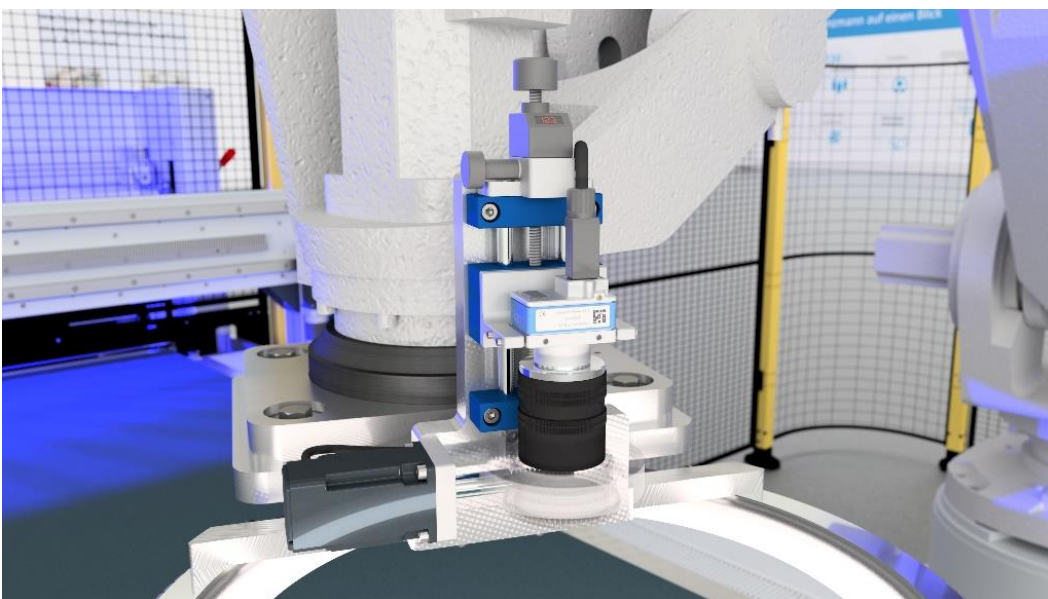


With this award, the company has already received its fourth innovation award within 2 years. “We are pleased that another innovation from our product area “Cutting & Stacking” has been awarded,” says CEO Matthias Feil, “especially as the market acceptance for this product is very good so far. The first systems have already been sold, others are in the quotation phase.” Last year, the Cutting & Stacking solutions themselves already won the ThinkKing Award from the Landesagentur für Leichtbau Baden-Württemberg (State Agency for Lightweight Design). The innovative semi-finished production line „Cube“ was selected as one of the finalists at the “JEC Award” and the company was named a “Top 100 Innovator”.



Camera system on cutting and stacking cell

Picture: Schmidt & Heinzmann GmbH & Co. KG



Detail view camera system

Picture: Schmidt & Heinzmann GmbH & Co. KG

About AVK Innovation Award

One of the objectives of the Innovation Award is to promote new products/components or applications made of fiber-reinforced plastics (FRP) and to promote new methods or processes for manufacturing these FRP products. An important goal is to honor the innovations as well as the companies/institutions behind them and thus to present the performance of the entire composites industry to the public. The submissions are evaluated by a top-class jury of experts from the composites sector.



About AVK

AVK – Industrievereinigung Verstärkte Kunststoffe e.V (Reinforced Plastics Industry Association) is the German association for fiber-reinforced plastics / composites and represents the interests of producers and processors at national and European level.

About Schmidt & Heinzmann

Schmidt & Heinzmann has been developing and producing innovative tailor-made production machinery and automation solutions for the fiber-reinforced plastics industry for more than 50 years.

The product portfolio includes:

- Cutting systems for all kind of fibers
- SMC production machinery
- Automated cutting & stacking systems
- Deburring & Trimming Solutions
- Preforming systems for the automated production of textile preforms
- Bonding machines for automated processes
- Automation solutions for composite cut and part handling
- Customized special solutions

Headquartered in Bruchsal, Germany, and with offices in the United States and China, Schmidt & Heinzmann generated a turnover of 20 million Euro in 2021 with more than 130 employees.

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