Carbon Fiber & Additive Manufacturing Make Automotive Fixtures Up to 90% Lighter

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- RapidFit introduces a modular system based on 3D Printing for faster time-to-market and lasting cost reductions in automobile development
- Use of carbon fiber for fixture frames results in improved ergonomics and drastically reduced weight
- Integrated functionality increases repeatability in realistic part environment

Leuven, Belgium – 17 April, 2018. RapidFit, a tool manufacturer and subsidiary of the 3D printing specialist Materialise, is launching a new innovation in its tried-and-tested modular system for automotive tooling. The innovative combination of carbon fiber beams and individual 3D-printed elements makes it possible to produce jigs and inspection fixtures that are up to 90 percent lighter than conventionally produced tools. The mounted forms and mounting points as well as the frame connectors are produced using Additive Manufacturing. The combination of 3D-printed parts and carbon fiber beams leads to a high-strength, low-weight result.

The decreased weight makes it possible for a single person to operate and move the fixtures without using heavy equipment. That means they can be used more easily and quickly. The new carbon fiber fixtures fulfill all current standards regarding functionality, precision, stability, and stiffness. The use of carbon fiber beams minimizes thermal expansion. That means the attachments are suitable for different applications in measuring rooms, the production environment, and climatic chambers. The new fixture is being presented to an expert audience for the first time at the Control trade fair (April 24-27 in Stuttgart) at Stand 5132 in Hall 5.

“Recently, more and more customers have expressed a desire for lighter, flexible solutions that do not compromise on quality or strength,” says Filip Dehing, Managing Director at RapidFit. “Adding carbon fiber frames to our product range lets us deliver exactly what they want.”

The RapidFit system fundamentally changes the development and production process for automotive tools and makes it possible to bring new automotive models on the market faster. High-precision, dimensionally stable jigs can be realized and changed quickly and easily, which reduces processing time for new design iterations and upgrades. In addition, the option of using Additive Manufacturing wherever necessary makes it possible to develop solutions for very complex forms and integrated functionalities. Snap fits and clips that can be detached again increase repeatability and improve the representation of the part environment. The utilization of standardized parts that can be used again saves costs in the long run.

To construct a jig, RapidFit uses CAD data and an in-house developed parametric library of standardized solutions. This parametric library allows RapidFit engineers to efficiently customize a design starting from the closest applicable template, saving the customer crucial work-days. The parts of the system that need to be 3D-printed are then produced at Materialise's state-of-the-art Certified Additive Manufacturing facility. After the parts are mounted onto the framework, they are calibrated with a high-end coordinate measuring machine (CMM), in RapidFit’s measurement lab.

About Materialise

Materialise incorporates 27 years of 3D printing experience into a range of software solutions and 3D printing services, which together form the backbone of the 3D printing industry. Materialise’s open and flexible solutions enable players in a wide variety of industries, including healthcare, automotive, aerospace, art and design, and consumer goods, to build innovative 3D printing applications that aim to make the world a better and healthier place. Headquartered in Belgium, with branches worldwide, Materialise combines the largest group of software developers in the industry with one of the largest 3D printing facilities in the world.

About RapidFit

RapidFit, a Materialise company, helps the automotive industry to speed up time-to-market and reach a new level of quality inspection and production efficiency. As a dedicated tool manufacturer for vehicle development, RapidFit produces inspection fixtures, production tools and design aids using a combination of 3D-printed parts and other manufacturing techniques. Backed by Materialise’s Certified Additive Manufacturing facility, RapidFit offers their customers the speed of on-demand production combined with decades of expertise in design for 3D Printing.

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