Rotating support for a Bluetooth-testing antenna 3D printed using the Fortus 380mc.

Hager Group Cuts Tooling Production Time and Costs with Additive Manufacturing

A Need for a Quick, Flexible Design Solution

As part of its continuous improvement process to increase responsiveness, reduce production time and cost, and remain innovative, Hager Group production site in Saverne — which specializes in home automation and energy management systems — decided to look at advanced additive manufacturing as a possible solution.

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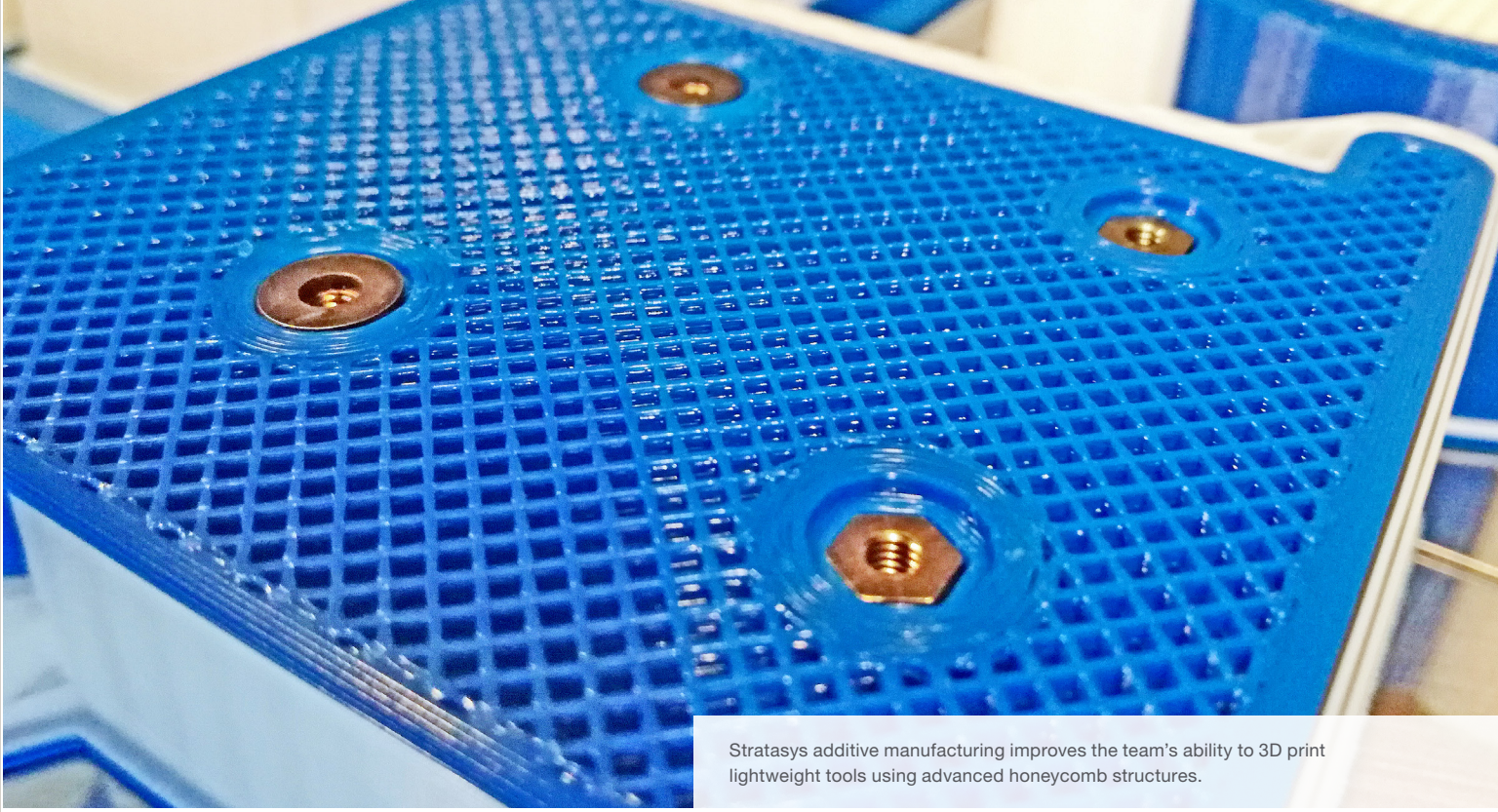
>
> Alexandre Callegher
>
> **Mechanical Engineer, R&D Department, Hager Group**

stratasys

Case Study



Stratasys additive manufacturing improves the team's ability to 3D print lightweight tools using advanced honeycomb structures.

The company purchased a Stratasys® FDM® 3D printer to seamlessly and cost-effectively respond to industrial needs with advanced tooling. Requiring an easy-to-operate, safety-compliant solution that would keep up with production demands, Hager chose the industrial-level Fortus 380mc™ 3D printer. This high-performance 3D printer enabled the company to work with production-grade thermoplastics.

"At Hager Group, we need to create intricate parts — something that is time-consuming and costly with traditional machining methods, and not always feasible with just any 3D printing solution," says Alexandre Callegher, Mechanical Engineer at Hager Group. "By installing a Fortus 380mc 3D printer in-house, we now have an advanced system that provides dependable results throughout the tooling process."

Previously, when a tool had to be replaced or manufactured on the production floor, the long outsourcing process did not allow the team to be reactive. This risked a halt in production, added cost and slowed productivity.

"We needed a method that could create complex, functional and lightweight parts efficiently — this is where FDM-based 3D printing fits perfectly, which is why we have integrated it across all of our operations here in Saverne," explains Callegher. "The 3D-printed parts have led to a significant cost reduction compared to machining the part out of aluminum, as well as a 50 percent reduction in overall weight. We estimate that we have seen a ROI within 18 months."

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Complex Tooling Made Faster and Lighter

Traditionally, tools would be manufactured in aluminum, which was expensive and time consuming, and left the team with little room for design flexibility.

Bringing such a high-performance, production-oriented solution in-house enables the team to design iterations quickly, saving money and up to three days of lead-time since 3D printing eliminates drawing stages and mechanical constraints found in conventional metal manufacturing.

"We now regularly produce customized, low-volume tools within 24 hours of an engineer's request — a fraction of the cost and weight of an aluminum tool. In comparison, when outsourcing traditionally manufactured tools, the process took two weeks," says Callegher.

A decrease in tool weight was an additional benefit the team experienced thanks to FDM Technology™. That's because FDM additive manufacturing allows the team to 3D print lightweight tools using advanced honeycomb structures at a fraction of the time and cost it takes using conventional manufacturing methods.

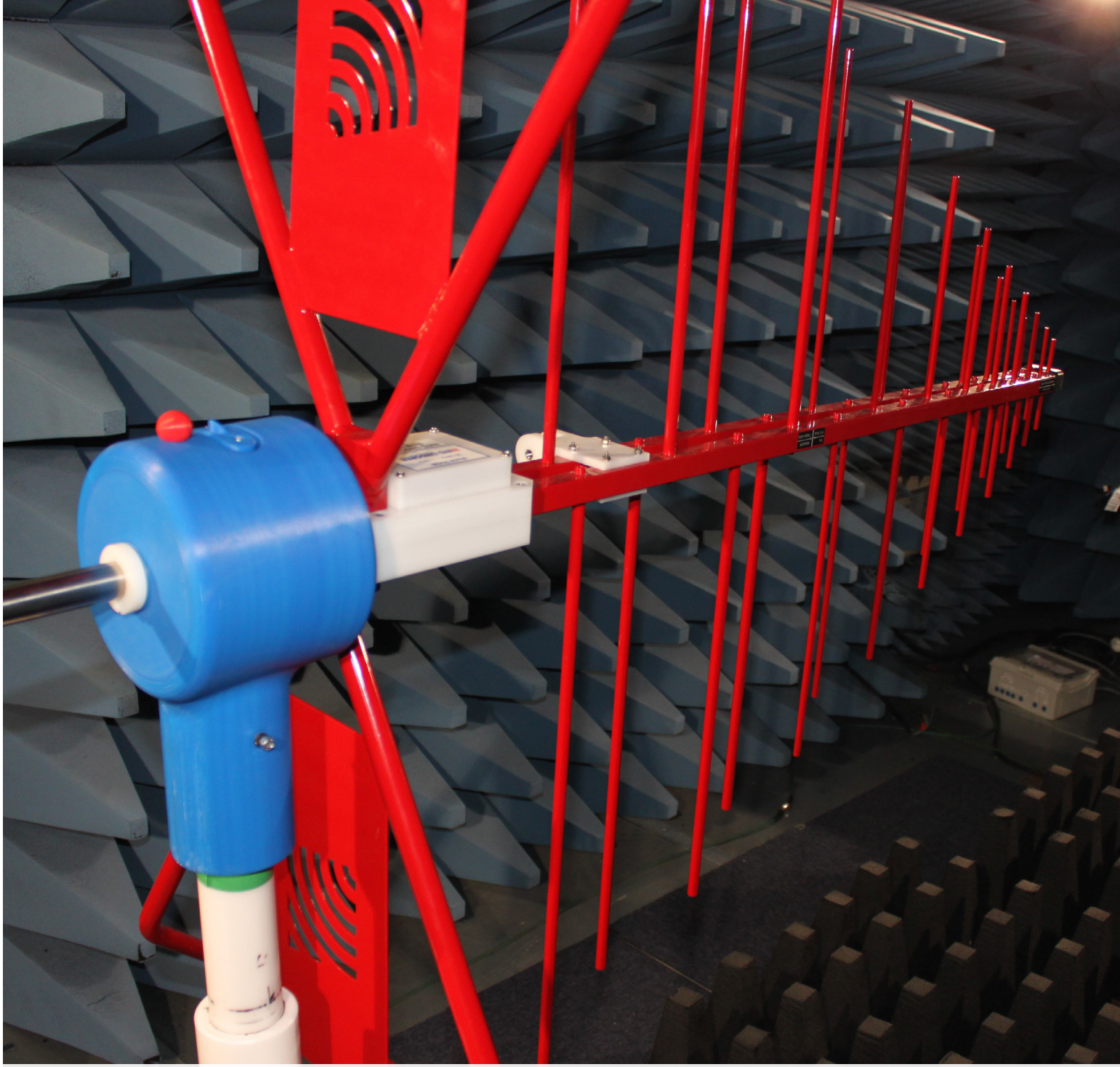
Additionally, when the team was tasked with replacing the rotating support for an antenna — which is essential for testing Bluetooth frequency — they turned to 3D printing.

Expanding Beyond Production Tooling

Hager is now looking beyond production tooling after seeing the benefits of using Stratasys technology during their design process.

According to Callegher, "FDM technology has altered the way we work to the extent that we are planning on commercializing small series products incorporating 3D-printed parts. Over the next couple of years, we intend to print 120 thumb-sized caps with an electronic device integrated with resin to hold in place. Before our investment we did not foresee the commercial benefits. Stratasys 3D printing has opened our eyes to the ways in which we can fully develop what we do here in Saverne."

Final 3D-printed cap for use with an electronic device produced in ABS-M30™.



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