

Ricoh 3D launches design optimisation service

One of the UK's leading additive manufacturing specialists has launched a new design optimisation service for 2021.

Ricoh 3D has enhanced its reputation as a full end-to-end consultancy through the addition of state-of-the-art generative design and optimisation software.

This specialist service enables the design process to be reimaged using Finite Element Analysis (FEA) simulation tools to create generative design concepts precisely engineered to meet or exceed specified performance or geometric parameters. The process typically delivers a range of concepts that would otherwise be difficult for the designer to convert into CAD data or even conceive of. This leads to the futuristic, organic shapes that are often associated with 3D printing.

The design freedom afforded by optimisation technology is already utilised widely in the aerospace, automotive and medical industries, with interest gathering pace across all manufacturing sectors.

Richard Minifie, Senior Design Engineer at Ricoh 3D, said: "We've been offering CAD design services for many years now to help customers realise the benefits of 3D printing, but we pride ourselves on evolving with our customer base and many of our more advanced applications demand design innovation with absolute confirmation of effect. As we move towards 3D printing being widely adopted for end-use our customers require that performance guarantee.

"We see endless parts being produced for additive manufacturing that are still designed as though they are being applied to traditional manufacturing methods. Very often those who have worked with traditional methods all their lives do not fully understand how AM can completely remove old design constraints.

"Our in-house team of experts and sophisticated software can bridge the gap between designs suitable for traditional manufacturing and those which realise the full potential of 3D printing, providing solutions which cannot be produced using conventional manufacturing techniques.

"The benefits are numerous –from cost saving to weight reduction and enhanced performance to sustainability.

"Our in-house design optimisation service has already yielded benefits on a number of projects, including enhancing a lever device for a local orthopaedic hospital to assist patients with fitting and removing their ankle-foot orthotic.

"Amongst the savings were a 60 per cent weight reduction in the part ,when compared to traditional manufacturing methods, and 15 per cent cost saving. Businesses that are looking to use 3D printing as a final production method should be considering optimisation as part of their design process – not least to create the fascinating shapes that are possible, but also for impressive operating cost savings. We invite anyone to challenge us to see what gains are possible for your products using this technology.

"Ricoh ourselves have discovered many opportunities in-house to maximise production line efficiencies using design optimisation. With 25,000 toner bottles distributed out of our Telford factory every day, we've already started to apply these learnings internally. By remodelling a jig used in our automated QA processes, we've been able to make significant cost and weight savings on toner production line tooling and provide the performance assurances required for adoption."

Ricoh 3D are now offering services in both generative design and shape optimisation. Simply put, generative design uses complex software to remove material after Finite Element Analysis (FEA) while shape optimisation sees the CAD user remove material manually after FEA.

Richard added: “Part of the service involves us fully understanding the end application to achieve the best results, design optimisation really excels when the intended function is thoroughly analysed.

“We have the on-site 3D and injection moulding facilities to optimise designs for any production volume; whether that’s for weight-reduction, part assembly or strength, and test materials for process control and traceability.

“Our QA and metrology services enable us to offer consistency and confidence with every part, right throughout the design, production and post-production process.”

For more information, visit www.rapidfab.ricoh-europe.com

Issued by 8848 Communications on behalf of Ricoh 3D. For more information, contact Sean Wozencroft or James Garrison on sean@8848agency.com / james@8848agency.com or call 01902 907520.