

Ricoh 3D launches powder-based 3D composite

A leading 3D printing specialist has introduced carbon fibre composites to its line-up of high-performance materials through a partnership with composite-based manufacturer Impossible Objects.

Ricoh 3D is one of the first AM service bureaus to make 3D printed Carbon Fibre PEEK and Carbon Fibre PA12 materials commercially available in Europe for functional prototypes and small batch production. The unique printing process leverages high-speed 2D graphics technology to create a high performance, reinforced composite part.

The end result is extremely cost-effective parts with impressive strength-to-weight ratios and a performance similar to that of metals. Compared to traditional composite manufacturing, Impossible Objects' Composite Based Additive Manufacturing (CBAM) process creates much stronger parts with very few geometric restrictions, at significantly lower prices than have been possible before. This is especially good news for aerospace and drone manufacturers, as fine features and flat parts were previously impossible with FDM and FFF technologies due to the short, chopped fibre formation and lamination between layers, causing parts to fall apart under force.

With powder-based 3D composite, continuous carbon fibre is contained in long fibre printing sheets which allows full homogenous coverage of the fibres – making point features and feathered edges possible. As the excess fibres support the unprinted areas, issues with shrinkage, curling or deformation of parts are eliminated.

Mark Dickin, Additive Manufacturing & Moulding Engineering Manager at Ricoh 3D, said:

“Composites are set to be an area of huge growth in additive manufacturing in the coming years, so we are proud to be working with Impossible Objects to be at the forefront of the European movement. Carbon Fibre composites are industry-leading when producing lightweight yet strong parts.

“These properties make the materials ideal for tooling and end-use applications in a range of industries, including medical, aerospace, automotive, sport and industrial; creating anything from propellers to gear components, golf clubs to prosthetics.

“It was very important to us that this was a sustainable offering. All powder is recycled by extracting the waste material off the sheet, ensuring nothing is wasted and making the process even more efficient than SLS.

“We are working closely with the team at Impossible Objects on future material developments and our engineers look forward to demonstrating how these new materials can change the game across a range of industries.”

Composite materials are a combination of two or more dissimilar materials – typically a core polymer and a reinforcing material - that are used together in order to combine their best properties.

The end product is usually extremely strong as a result - but traditional composite manufacturing is very labour, resource and capital intensive.

3D printing has allowed production to be automated with minimal manual input, streamlining the process and making it far more cost effective. Ricoh 3D have shared a series of sample parts on their website which demonstrate the cost savings possible with powder-based 3D composite.

Bob Swartz, Founder and Chairman at Impossible Objects added:

“Our collaboration with Ricoh 3D is another major endorsement of our revolutionary 3D printing process. Our customers, from government agencies to Fortune 100 companies, have put our approach to work to create high-performance parts for everything from aircraft and cars to athletic gear. CBAM opens up new possibilities for additive manufacturing by making it possible to produce stronger, high-performance 3D printed parts at dramatically lower cost than ever before. Our partnership with Ricoh 3D will extend these competitive advantages to more organisations across Europe.”

For more information and to download the datasheets visit <https://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.