

INNOVATION

Impossible Objects boasts faster, more complex, stronger parts; 3D printing experts are skeptical

A new additive manufacturing company claims to produce some of the strongest 3D-printed parts in the industry, poised to compete with companies like MarkForged, but experts aren't fully convinced.

By Hope Reese | March 29, 2016, 8:21 AM PST

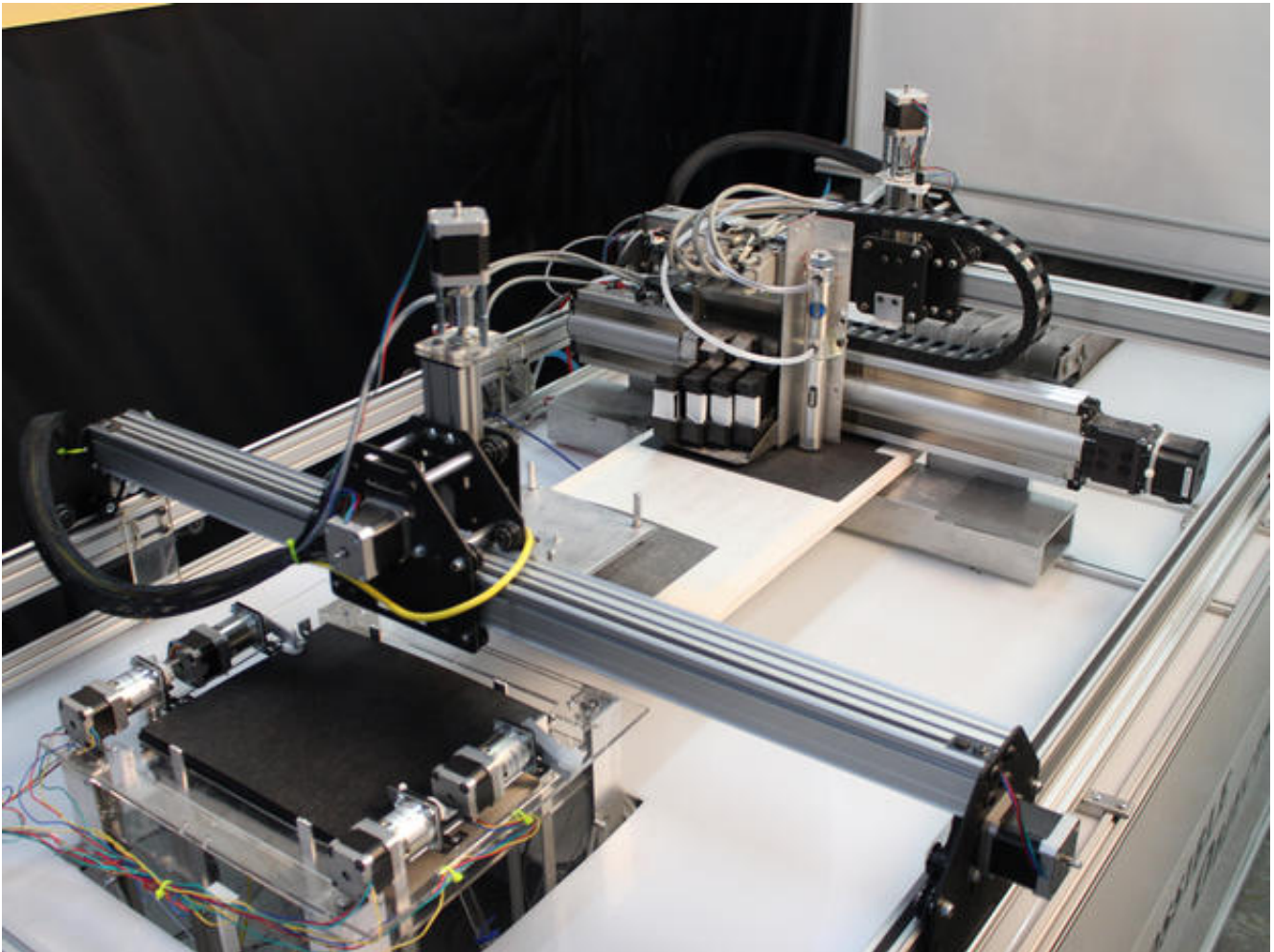


Image: Impossible Objects

Bob Swartz, the founder and CTO of [Impossible Objects](http://impossible-objects.com/) (<http://impossible-objects.com/>), an additive manufacturing company using carbon fiber, wants to make 3D printing better. And it seems he's on the right path: Impossible Objects, which plans to begin shipping printers later this year, has

been hailed by *The Wall Street Journal* as a company that could "change manufacturing (<http://www.wsj.com/articles/3-d-printing-promises-to-change-manufacturing-1456722000>)."

How? The company, which uses a layer-by-layer process, approaches some of the problems of current 3D printing—speed, material properties, selection of materials—as a material science problem, hoping to compete with current production technology.

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"One fundamental insight is that composites are really the future of materials," said Swartz. "You can get much better properties from composites than homogenous materials."

Swartz believes that his company "has significant advantages over existing processes"—namely, he said, their competitor, [MarkForged](https://markforged.com/) (<https://markforged.com/>).

The advantages, said Swartz, include speed, design freedom, and geometric complexity.

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The inkjet technology, said Swartz, makes centering faster. He also said the hardware is less expensive. And one of the most important improvements, Swartz believes, is the strength of the objects the printer can produce. "When you use materials like carbon fiber, you can get much higher material property strength." The printer, he said, uses a large variety of materials and substrates, as well as a variety of polymer binders.

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Swartz said that since MarkForged objects are created by holding filaments together, the strength they get in the Z direction (which refers to the depth) is less than the strength of his products. "They don't infuse their fiber with the polymer as much," he said, "which reduces their strength over ours."

Impossible Objects boasts that some of its products—propellers, fan blades for trucks, etc.—have held together when parts made by other printing methods have fallen apart because of poor Z-strength.

But some experts in 3D printing are skeptical about Impossible Objects' claims.

Spencer Wright, VP of Product at [nTopology](http://ntopology.com/) (<http://ntopology.com/>), who researches and writes about metal 3D printing, said that "it's totally possible" that Impossible Objects offers advantages over MarkForged—however, he believes that their range of products has been exaggerated. And he sees companies like Impossible Objects as being overhyped.

SEE: 3D printing: The trends that will change the game in 2016

(<http://www.techrepublic.com/article/3d-printing-the-trends-that-will-change-the-game-in-2016/>)

"It seems like every few weeks there's a new, exciting '3D printing' technology announced," said Wright. "Many of these truly are interesting and will probably go on to be highly productive, but it's important to question what we mean when we refer to them as 3D printing. We've got processes that are as divergent as EBM (where highly reactive metal powder is melted by an electron beam inside a machine that costs about \$1M) and CLIP (where resins are cured, continuously, by an ultraviolet light projector in a vat)."

Michael Shanler, manufacturing expert at Gartner, agrees: "cutting through the hype is essential."

"Lots of vendors make really bold and irresponsible claims about how 3D printing will 'disrupt' the manufacturing industry," said Shanler. "While some 3D printing applications have advantages, there are many traditional manufacturing processes that scale much better, faster, and cheaper. Finding the sweet spot for 3D printing technology is critical."

SEE: CES 2016: The crowded field of 3D printers, in photos

(<http://www.techrepublic.com/pictures/ces-2016-the-crowded-field-of-3d-printers-in-photos/>) (TechRepublic)

And, perhaps most importantly, Pete Basiliere, analyst at Gartner, reminds us that Impossible Objects has yet to prove their claims.

"Regarding speed, complexity and strength," said Basiliere, "Impossible Objects has not introduced its press to the market, making a comparison of the same object printed by both companies, er, impossible."

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