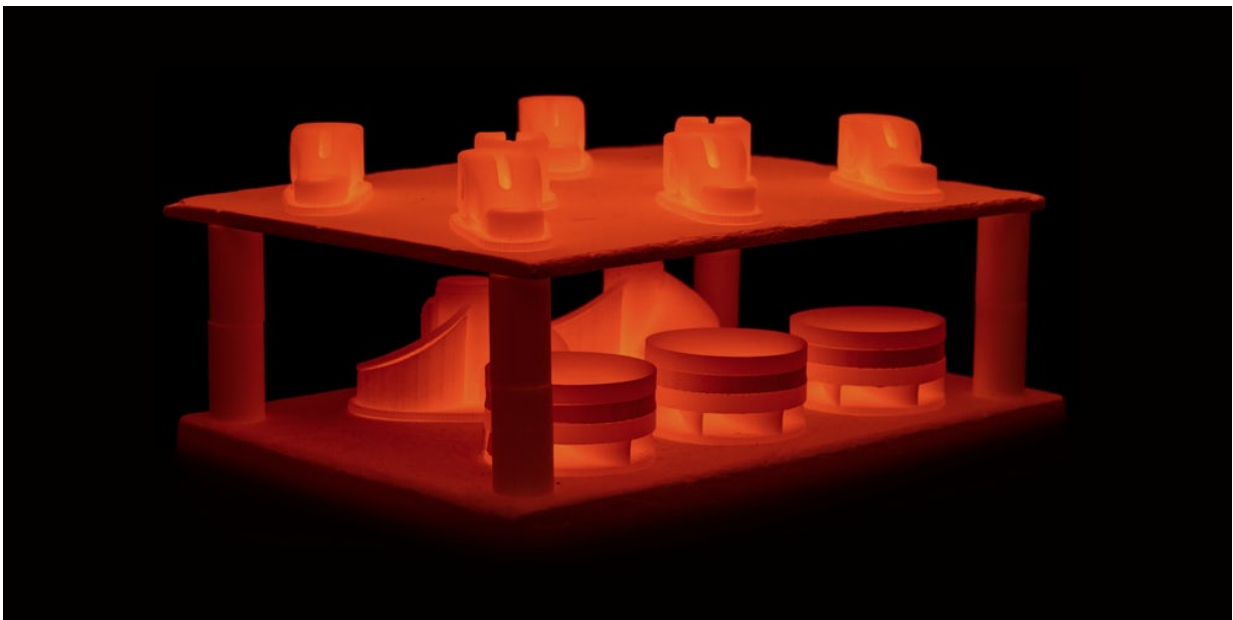


Company focused on swinging metal 3-D printing into faster lane

August 1 2017, by Nancy Owano



Credit: Desktop Metal

(Tech Xplore)—Metal 3-D printing has yet to command center stage, but 3-D printing-watchers say that, with the developments going on at a Massachusetts-based company, that may change.

The company has a system that could "revolutionize" manufacturing by making the cost and speed of 3-D metal printing competitive with traditional processes.

Ryan Whitwam, *ExtremeTech*, said that in manufacturing, "3-D printing is mostly seen as a prototyping technology, not a way to actually produce things." Various aerospace firms, for instance, turn to metal printing for making individual [components](#).

It has been observed that some organizations are getting valuable use out of laser-melted metal printing, but the process is slow and does not seem to scale well.

Could printing with metal become fast enough and cheap enough for mass production?

"Fundamentally different approaches are needed to move metal 3-D printing beyond its current limits," the company has stated.

Desktop Metal "thinks it can finally take 3-D metal printing mainstream with its new system, which is supposed to be both less expensive and more capable," said Whitwam.

Desktop Metal isn't the first company to bring metal 3-D printing to market, said *TechCrunch*, "but it's probably the most efficient."

What's the big deal all about? Desktop Metal has a system where parts can be printed in minutes instead of hours. Video notes described the system as "100 times faster and 20 times cheaper than laser-based 3-D metal printers.

CEO Ric Fulop said in *TechCrunch*: You can change your design and iterate very fast."

New Atlas remarked on those numbers. Loz Blain in *New Atlas*: "if Desktop Metal delivers on its promises – that it can make reliable metal printing up to 100 times faster with 10 times cheaper initial costs and 20

times cheaper materials costs than existing laser technologies, using a much wider range of alloys – these machines might be the tipping point for large scale 3-D manufacturing."

TechCrunch weighed in on just how much impact we can expect this to have on manufacturing.

"Speed has been of the main bottlenecks in mainstreaming 3-D printing for manufacturing—metal or otherwise. The production system isn't going to replace wide scale manufacturing any time soon, but it will make it a more [realistic](#) possibility for smaller speciality parts, with its ability to print 500 cubic inches of metal per hour," said Brian Heater, *TechCrunch* hardware editor.

It works by combining powder spreaders and print unit into a single path system, to spread the [metal powder](#) and print. They describe the process as Single Pass Jetting (SPJ), in delivering the faster speeds.

"Two full-width print bars containing over 32,000 jets work in conjunction with powder spreaders to spread powder and print in a single quick pass across the build area, jetting millions of droplets per [second](#)."

A metering system deposits the metal powder. A compacting system forms a layer—as thin as a human hair.

(The production machines use powders bonded together during [printing](#) by spray-jetted droplets of a binder solution. They use regular, low-cost, MIM powders. In contrast, laser machines need expensive powders with precise particle sizes. Material costs here will be up to 20 times lower, Blain said.)

Printed [objects](#) are ready to use out of the furnace, no retooling required,

Fulop said in a CNBC report.

The company is putting forward two systems: a studio system and a production system for mass manufacture. Describing their Studio system, the company site said the printer shapes the parts—and the furnace sinters the parts. (The furnace combines SiC heating elements with high-powered [microwaves](#).)

Desktop Metal is shipping its first Studio system printer to customers this year. Likely candidates would be engineers who want to develop and test hardware prototypes in their office or lab. The Production system, more expensive, will ship next year to businesses that mass produce [metal](#) parts and want to use 3-D printers on the factory floor.

More information: www.desktopmetal.com/products/production

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