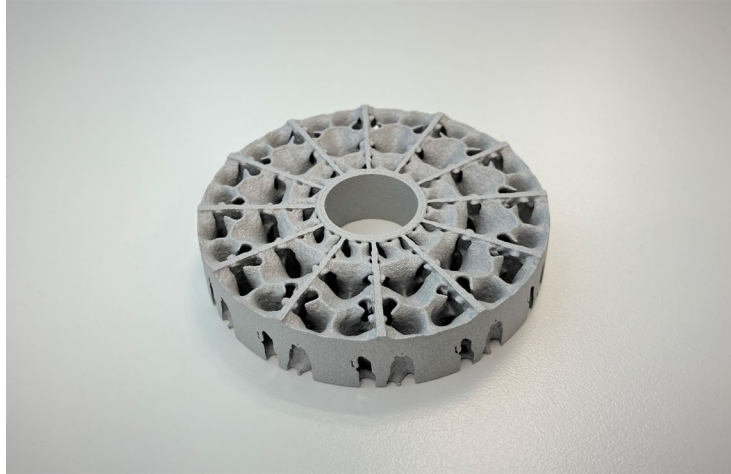

Ricoh and Siemens collaborate to realize the industrial aluminum Binder Jetting process for mass production

TOKYO, October 31, 2023 – Ricoh Company, Ltd. has today announced that Ricoh and Siemens Digital Industries Software, a world-leading provider of product lifecycle management and manufacturing operations management software, have started a collaboration to realize the industrial aluminum Binder Jetting (BJT) solution for mass production.

Ricoh is leveraging Siemens' Additive Manufacturing Network capabilities to maximize the process's efficiency and achieve the scale required to take advantage of BJT in an industrial setting. Additionally, Ricoh is implementing the Additive Manufacturing Network solution to optimize the aluminum BJT workflow for production preparation, planning, scheduling, and production management with less effort. Ricoh has also implemented Siemens' Brownfield Connectivity and has begun collecting and storing information on each process necessary for quality stabilization and production control. Siemens will continue to provide Ricoh with solutions optimized for the aluminum BJT workflow, and both companies aim for early commercialization of these technologies.

Ricoh's proprietary Binder Jetting Technology applies the company's inkjet printing technology and expertise to enable the production of metal parts with more complex shapes that would not be possible with conventional metal processing methods such as machining and casting. In the process of BJT, the aluminum-alloy powder is spread out over the modeling area and then solidified with a specially formulated binder to shape the part. The same process continues layer-by-layer-by-layer until completing shaping the whole part. After the process, the 'green-body' part is sintered in a furnace to create a densified, end-use component that can be used as is or enter a downstream post-processing chain.

Ricoh has positioned the "realization of a zero-carbon society" as one of its material issues. Ricoh aims to achieve zero GHG emissions throughout its entire value chain, enabling customers to develop highly energy-efficient products by using Ricoh's 3D printers, thereby contributing to the realization of a zero-carbon society.



High efficiency air-cooling heatsink created by RICOH's aluminum BJT system

“The production of aluminum parts is a holy grail for the additive industry, and we’re delighted that Ricoh has chosen Siemens’ Additive Manufacturing Network capabilities from the Siemens Xcelerator portfolio of industry software to help them commercialize a much sought-after process,” said Zvi Feuer, Senior Vice President, Digital Manufacturing Software, Siemens Digital Industries Software. “Our collaboration with Ricoh will apply its expertise in additive manufacturing with our knowledge and experience in delivering additive-specific operations management technology across a wide spectrum of industries – from order capture, production planning, and manufacturing to part delivery transaction closure. Together, Siemens and Ricoh are working to deliver repeatability and consistency at the scale needed to truly take advantage of using robust and repeatable aluminum additively manufactured parts in the commercial world.”

Tokutaro Fukushima, General Manager of Additive Manufacturing Business Center, Ricoh Futures Business Unit, Ricoh Company, Ltd., said, “Ricoh will enable our customers to manufacture innovative aluminum components that have never been produced before by any process and will work with them to realize new customer value in the area of electrification of EVs and other forms of mobility. By combining Siemens’ powerful solutions and knowledge with Ricoh’s aluminum BJT, we will be able to provide our customers with highly reliable and practical systems for mass production applications. We hope to promote electrification together with our customers and contribute to solving social issues such as realizing a zero-carbon society.”

Related Information

[Formnext2023](#)

Ricoh Company, Ltd. and Ricoh UK Products Ltd. will exhibit the metal binder jetting technology at the Formnext event, held at Messe Frankfurt, Germany, from November 7 to 10, 2023

To learn more about how Ricoh has been developing 3D printing technology that enables mass production to aluminum parts which are widely used they conduct heat well and are lightweight, visit: https://www.ricoh.com/technology/tech/123_metal_3d_printing

About Siemens' Additive Manufacturing Network

Siemens' Additive Manufacturing Network is an advanced online order-to-delivery collaboration and fulfillment solution designed for the industrial additive manufacturing community. It serves as the crucial link between demand and supply within this ecosystem, offering a streamlined approach and a comprehensive set of domain-specific tools to facilitate collaboration, procurement, and fulfillment processes for the production of parts.

<https://additive-manufacturing-network.sws.siemens.com/>

About Siemens' Brownfield Connectivity

Siemens' Brownfield Connectivity establishes a connection between the production network and higher-level networks based on a gateway. It enables a standard solution to acquire machine data from Siemens' controllers, third-party controllers, and automation technology and transfer this data in a controlled manner. For a fast integration Siemens supports customers with comprehensive consulting during ongoing operations.

<https://marketplace.siemens.com/global/en/all-offerings/services/b/brownfield-connectivity.html>



| About Ricoh |

Ricoh is a leading provider of integrated digital services and print and imaging solutions designed to support digital transformation of workplaces, workspaces and optimize business performance.

Headquartered in Tokyo, Ricoh's global operation reaches customers in approximately 200 countries and regions, supported by cultivated knowledge, technologies, and organizational capabilities nurtured over its 85-year history. In the financial year ended March 2023, Ricoh Group had worldwide sales of 2,134 billion yen (approx. 16.0 billion USD).

It is Ricoh's mission and vision to empower individuals to find Fulfillment through Work by understanding and transforming how people work so we can unleash their potential and creativity to realize a sustainable future.

For further information, please visit www.ricoh.com

###

© 2023 RICOH COMPANY, LTD. All rights reserved. All referenced product names

are the trademarks of their respective companies.