

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

- **Ricoh and Siemens start collaboration to develop the solution for aluminum Binder Jetting Technology for mass production**
- **As the first step of the collaboration, Ricoh has implemented Siemens' Additive Manufacturing Network to build a full digital process to optimize its internal process and machine management for aluminum binder jetting technology – from print job preparation, through manufacture, to delivery of components**
- **Ricoh also aims to leverage the Additive Manufacturing Network capabilities to digitally transform its process service provision to a wide spectrum of industrial additive manufacturing focused customers**

Siemens Digital Industries Software has today announced that Ricoh have begun 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 efficiency of the process and to achieve the scale required to take advantage of BJT in an industrial setting.

Additionally, [Ricoh](#) is implementing Siemens' [Additive Manufacturing Network](#) 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.

"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.”

Metal Binder Jetting Technology for manufacturing innovative aluminum parts contributes to weight reduction and improved heat exchange performance of aluminum parts by realizing shapes that cannot be produced with existing processing technologies. The binder jetting method saves time and resources due to its high productivity and the ability to reuse unused materials. Ricoh's industrial inkjet printhead technology, developed over many years, enables stable manufacturing of parts with complex shapes and is capable of processing aluminum alloy, a widely used material for metal parts.

To learn more about how Siemens is providing world-class manufacturing operations management to the additive manufacturing industry and how the Siemens' Additive Manufacturing Network is supporting pioneers in the industry, visit: <https://additive-manufacturing-network.sws.siemens.com/>

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

Note to editors: [Formnext](#) is one of the world's leading additive manufacturing focused events, held at Messe Frankfurt, Germany, from November 7 to 10, 2023. Siemens will demonstrate its latest developments in the field of Additive Manufacturing. Ricoh Company, Ltd. and Ricoh UK Products Ltd. will exhibit the metal binder jetting technology at the event.

Siemens Digital Industries Software helps organizations of all sizes digitally transform using software, hardware and services from the Siemens Xcelerator business platform. Siemens' software and the comprehensive digital twin enable companies to optimize their design, engineering and manufacturing processes to turn today's ideas into the sustainable products of the future. From chips to entire systems, from product to process, across all industries. [Siemens Digital Industries Software](#) – Accelerating transformation.

Contact for journalists

Siemens Digital Industries Software PR Team

Email: press.software.sisw@siemens.com

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