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**Renishaw enhances medical manufacturer’s additive manufacturing accuracy**

As medical devices become more compact, intricate and discrete, medical device manufacturers require the innovative technology that allows them to stay ahead of their market and produce high quality and accurate components. Global engineering company, [Renishaw](https://www.renishaw.com/en/renishaw-enhancing-efficiency-in-manufacturing-and-healthcare--1030?utm_source=Renishaw&utm_medium=BP&utm_campaign=REC559), has collaborated with medical device manufacturer, Marle Group, to help improve its production flexibility for bespoke jobs and overall manufacturing accuracy, through improved metal powder management for additive manufacturing (AM).

**Background**

Marle Group, founded in 1964, specialises in the production of large orthopedic devices, such as knee and hip joints, with a range of forging, casting, milling and polishing capabilities. It has recently grown its businesses by acquiring a separate 3D printing business, [3D Medlab](http://www.3d-medlab.com/?utm_source=Renishaw&utm_medium=BP&utm_campaign=REC559) who specialise in additive manufacturing for the medical sector.

**Challenge**

Marle 3D Medlab specialises in manufacturing complex medical devices, that require technical expertise, accurate and rapid manufacturing capabilities. The specific size of a hip joint will change for each patient, so the components need to be highly accurate to comply with industry regulations and fit the patient’s body correctly. The short time frame between production and surgery also demands a rapid production process to deliver the parts on time.

When Marle 3D Medlab was contacted by a customer to help integrate AM into its own facility, it opened the debate for better understanding about AM processes. As it had only just acquired 3D Medlab, additive manufacturing technology was new to the Marle Group, so it needed technology experts to help guide them through the different technologies, applications and training that was required to make both its own and its customer’s new business ventures successful.

**Solution**

Marle 3D Medlab contacted Renishaw in 2018 and after some consultation, it initially decided to install two Renishaw RenAM 500 AM systems in its facility. The first of these was for research and development work between itself and Renishaw, and the second system was for the customer. The latter enabled Marle 3D Medlab to train the customer and develop processes on the machine before it was transferred to the customer’s site.

After the successful integration and use of the first two machines, Marle 3D Medlab decided to support the future growth of its business by investing in a Renishaw [RenAM 500Q Flex](https://www.renishaw.com/en/renam-500-metal-additive-manufacturing-3d-printing-systems--37011?utm_source=Renishaw&utm_medium=BP&utm_campaign=REC559) machine, which was fitted with an AMPM (additive manufacturing process monitoring) module, the world’s first installation of this new accessory.

The RenAM 500Q Flex is a four-laser AM machine, which is a variant of the existing RenAM 500 range. The simplified, non-recirculating powder system enables manufacturers in R&D, pre-production or bureau environments to easily change between materials, without compromising on part quality or build capacity. Laser parameters are transferable to the high production, on-board powder recirculating 500Q system, allowing a straightforward pathway to a full production scenario.

**Results**

“The unique flexibility of the RenAM 500Q Flex with the AMPM module allows Marle 3D Medlab to use the machine’s lasers in Pulsed and Continuous mode, and easily swap between high value titanium grades, such as Ti6AI4V and Titanium-Tantalum alloy,” commented Chris Dimery, Sales and Marketing Manager for Renishaw’s Additive Manufacturing Group. “This added flexibility allows Marle 3D Medlab to quickly adapt its batches to the specific requirements of its medical customers. It can fit multiple bespoke parts on one build plate, increasing productivity and accuracy, compared to casting and machining processes.”

“Marle 3D Medlab has been supported by Renishaw UK and Renishaw Spain throughout the whole installation, training and day-to-day running process,” explained Gael Volpi, Head of Additive Manufacturing at Marle Group. “We have personal relationships with the process engineers and technical experts who are always at our disposal to help support us at any point. In the future, we will continue to focus on developing new products, processes and validation techniques with AM processes as we expand into a new industry.”

To find out more about Renishaw’s additive manufacturing machines, visit the website [www.renishaw.com/am](http://www.renishaw.com/am)

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**Notes to editors**

UK-based Renishaw is a world leading engineering technologies company, supplying products used for applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It has over 5,000 employees located in the 37 countries where it has wholly owned subsidiary operations.

For the year ended June 2021 Renishaw recorded sales of £565.6 million of which 95% was due to exports. The company’s largest markets are China, the USA, Japan and Germany.

Throughout its history Renishaw has made a significant commitment to research and development, with historically between 13 and 18% of annual sales invested in R&D and engineering. The majority of this R&D and manufacturing of the company’s products is carried out in the UK.

The Company’s success has been recognised with numerous international awards, including eighteen Queen’s Awards recognising achievements in technology, export and innovation.

Further information at [www.renishaw.com](http://www.renishaw.com/)