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**Renishaw helps Irish Manufacturing Research (IMR) to advance aerospace optics manufacturing**

[Renishaw](https://www.renishaw.com/en/renishaw-enhancing-efficiency-in-manufacturing-and-healthcare--1030?utm_source=Stone+Junction&utm_medium=PR&utm_campaign=REC922) has collaborated with Irish Manufacturing Research (IMR) to support groundbreaking research into additive manufacturing (AM) for novel aerospace materials. This collaboration is part of a Disruptive Technology Innovation Fund (DTIF) project led by mBryonics, a leading manufacturer of freeform optics for the space industry.

Through the placement of a Renishaw RenAM 500Q Flex system at IMR’s facility near Dublin, researchers are developing advanced process parameters for metal 3D printing of freeform optical components used in laser-based satellite communications. By shifting from conventional machining — where parts are cut from large metal blocks — to near-net-shape AM, the project aims to improve production speed and efficiency.

The [RenAM 500Q Flex](https://www.renishaw.com/en/renam-500-flex--48427?srsltid=AfmBOorcFWUrc3D-_l10Ihp8-CxsbDrkBKo0GS-4JZQZziZifzwh2iej&utm_source=Stone+Junction&utm_medium=PR&utm_campaign=REC922), equipped with Renishaw’s TEMPUS™ technology, was selected for this project due to its ability to overcome the specific challenges of printing highly temperature-sensitive aerospace materials. Traditional laser powder bed fusion (LPBF) systems often struggle with thermal fluctuations, which can lead to defects such as cracking. The 500Q Flex’s four-laser configuration and enhanced process control enable faster layer completion, while minimising temperature variations.

“Our approach will improve build quality and enable scalability,” explained Colin Meade, Additive Manufacturing Technologist at IMR. “This research isn’t just about lab-based experimentation; it’s about developing technology that is ready for full-scale production as quickly as possible. We need to reach a technology readiness level (TRL) of around seven or higher to ensure rapid transfer to industry.”

Looking ahead to the project's ambitious completion target of autumn 2026, Meade added, “In practice, this research could enable mBryonics to scale production from single-digit units per month to hundreds or even thousands.”

The partnership reinforces the importance of collaboration between industry leaders and research institutions in advancing Ireland’s aerospace manufacturing sector. Combining IMR’s expertise in advanced manufacturing research, Renishaw’s cutting-edge AM technology and mBryonics’ leadership in freeform optics, the project is set to deliver transformative results.

“Our collaboration with IMR is about more than just supplying technology, it’s about providing the expertise and support needed to drive innovation,” said Chris Dimery, AM Business Manager (EMEA) at Renishaw. “By working closely with IMR, we’re ensuring that advanced additive manufacturing solutions are developed with real-world industrial adoption in mind.”

For further information on the RenAM 500Q Flex, visit [www.renishaw.com/en/renam-500-flex](https://www.renishaw.com/en/renam-500-flex--48427?srsltid=AfmBOorcFWUrc3D-_l10Ihp8-CxsbDrkBKo0GS-4JZQZziZifzwh2iej)

**-ENDS-**

**Notes to editors**

**About Renishaw**

Renishaw is a world leading supplier of measuring systems and manufacturing systems. Its products give high accuracy and precision, gathering data to provide customers and end users with traceability and confidence in what they’re making. This technology also helps its customers to innovate their products and processes.

It is a global business with over 5,000 employees located in the 36 countries where it has wholly owned subsidiary operations. The majority of R&D work takes place in the UK, with the largest manufacturing sites located in the UK, Ireland and India.

For the year ended June 2024 Renishaw recorded sales of £691.3 million of which 95% was due to exports. The company’s largest markets are China, USA, Japan and Germany.

Renishaw is guided by its purpose: Transforming Tomorrow Together. This means working with its customers to make the products, create the materials, and develop the therapies that are going to be needed for the future.

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

**About Irish Manufacturing Research**

Irish Manufacturing Research (IMR) is a leading research and technology organisation providing a portfolio of research, training, and consultancy services to industry across the following four thematic pillars: Digitisation, Sustainable Manufacturing, Design for Manufacturing and Robotics & Automation.

IMR works with leading global and indigenous brands to demystify and derisk new and emerging technologies and to deliver high impact collaborative research and services to enable advanced manufacturing for a broad range of clients across Ireland’s manufacturing network.

Further information at [www.imr.ie](http://www.imr.ie)

**About mBryonics**

mBryonics is a leading manufacturer of freeform optics for the space industry. The company is dedicated to developing disruptive technology and innovation to improve cost efficiencies in the face of material limitations and the cost of weight.

mBryonics is working in collaboration with a number of space agencies to build the internet in space, and with the University of Galway’s College of Science and Engineering and J.E. Cairnes School of Business & Economics, to establish more efficient and adaptive manufacturing technology, driving innovation and investment in the west of Ireland.

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