*April 2025 – for immediate release*

**Renishaw and Metalpine collaborate to develop durable AM parts for harsh marine environments**

**Renishaw has collaborated with Metalpine, an Austrian producer of high-quality metal powders, to develop additive manufacturing (AM) solutions for marine applications. The partnership is focused on creating copper-nickel alloy (CuNi) powders for AM, to enable a major European naval force to manufacture replacement parts in-house using Renishaw’s** [**RenAM 500Q Flex**](https://www.renishaw.com/en/renam-500-flex--48427?utm_source=REC904&utm_medium=REC904&utm_campaign=REC904) **system.**

Operating in saltwater environments presents challenges for naval operations, with hydraulic components and other essential parts subject to accelerated wear and corrosion. Rather than relying on extensive supply chains, the naval force in question chose to additively manufacture replacement parts in-house, opting for CuNi powder parts manufactured on a Renishaw RenAM 500Q Flex system.

Created with a blend of copper and nickel alloy, CuNi powders create a protective layer on the surface of components, preventing degradation. This makes them highly durable in the challenging marine conditions where parts are constantly exposed to moisture and sea elements. Engineers from Renishaw and Metalpine partnered to develop process parameters tailored to two specific copper-nickel alloys: CuNi 10, a combination of ten percent nickel and 90 percent copper, and CuNi 30, using 30 percent nickel and 70 percent copper.

“Metalpine uses a stable and outstandingly efficient process to manufacture high-quality metal powders focused on particles with high sphericity and no pores. So, it is straightforward for us to develop and produce new powders,” explained Gerald Pöllmann, CEO of Metalpine. “Collaborating with the AM engineers at Renishaw was a great experience. The team quickly shared what they achieved with our powders during their qualification process, enabling us to create and deliver powders that fit the application perfectly.”

The powders were used in the RenAM 500Q Flex, an advanced metal AM system designed for R&D and pre-production applications. With an open-loop powder system, this machine allows for efficient and quick powder swapping, making it ideal for developing and optimising material properties, part designs and process parameters. With the Reduced Build Volume (RBV) accessory fitted, material prove out can be performed with as little as 0.25 litres of powder, with the same processing environment and optics as the full-scale production system.

"Metal powders made with copper are difficult to process with AM. CuNi 10 is a highly reflective material which is resistant to laser energy, whereas CuNi 30, due to its higher nickel content, is easier to process,” explained Alex Garcia, AM Design and Applications Engineer at Renishaw. “Leveraging Renishaw’s advanced laser melting technology, we conducted extensive experimentation to refine the energy input parameters. We adjusted the RenAM 500Q Flex power, scan speed and hatch distance to optimise the process for manufacturing with these materials.”

“With these precise settings, we have been able to overcome the material’s challenges, ensuring high-quality, durable parts that can withstand harsh marine environments. This optimisation not only enhances part strength and longevity but also ensures consistent results, allowing our naval customer to manufacture parts that perform reliably under tough conditions.”

The collaboration between Renishaw and Metalpine showcases the potential of AM to reduce downtime in marine operations by providing durable, high-performance parts that can be produced in-house.

For further information on the RenAM 500Q Flex system, visit [www.renishaw.com/renam500flex](http://www.renishaw.com/renam500flex)

**-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/)