Brochure

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AM 400 additive manufacturing system

Flexible metal additive manufacturing (AM)

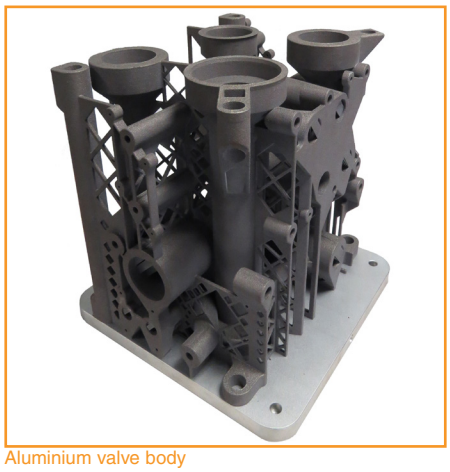
AM 400 system

The Renishaw AM 400 is the latest development of the Renishaw AM platform. It features all the most recent PlusPac machine updates including larger safe change filter, improved optical control software, revised gas flow and window protection system and a new 400 W optical system to give a reduced beam diameter of 70 µm, in line with the current AM 250 200 W platform.

The advantage offered by the AM 400 is the possibility to develop parameters that deliver higher productivity through faster scan speeds, whilst still maintaining feature definition and precision. An additional benefit is the direct transferability of existing 200 W material file parameters from the AM 250 200 W system. The increased laser power of 400 W focussed at 70 µm also provides the potential to process materials with elevated melting temperatures, with a significant increase in energy density compared to the current AM 250 400 W system.

- Build complex metal components direct from 3D CAD data
- Transferable parameters from AM 250 200 W to AM 400 systems
- Flexible and rapid material changeover
- Class leading patented inert atmosphere generation and low argon consumption
- Open access material parameter editing
- Soft recoater blade suited to lattice and delicate geometries
- Patented SafeChange™ filter system
- Build removal via chamber glove box enhances safety

Example AM builds



Aluminium valve body

Titanium wheel carrier

Additive manufacturing benefits

- Component weight reduction - only build material where required for optimised part functionality
- Rapid design iterations
- Bespoke or customised items
- Multiple parts consolidation
- Reduce tooling costs
- Build complex geometries such as thin walls, lattices and internal features
- Increased design freedom - AM is not constrained by traditional design rules

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Flexible material usage

The AM 400 features an external powder hopper with valve interlocks to allow additional material to be added whilst the process is running. It is possible to remove the hopper for cleaning or to exchange with a secondary hopper for materials change, so multiple material types can be interchanged with relative ease.

The powder overflow containers are outside the chamber and have isolation valves. This allows unused materials to be sieved and reintroduced to the process via the hopper while the system is running.

Class leading inert atmosphere and minimal gas consumption

Renishaw's patented class leading inert atmosphere generation works by first creating a vacuum before back filling with high purity argon gas. This method ensures a high quality build environment as well as minimal argon usage for atmosphere generation, suitable for all qualified metals including titanium and aluminium. Gas consumption is further minimised by the use of a sealed and welded chamber.

Open parameters and materials

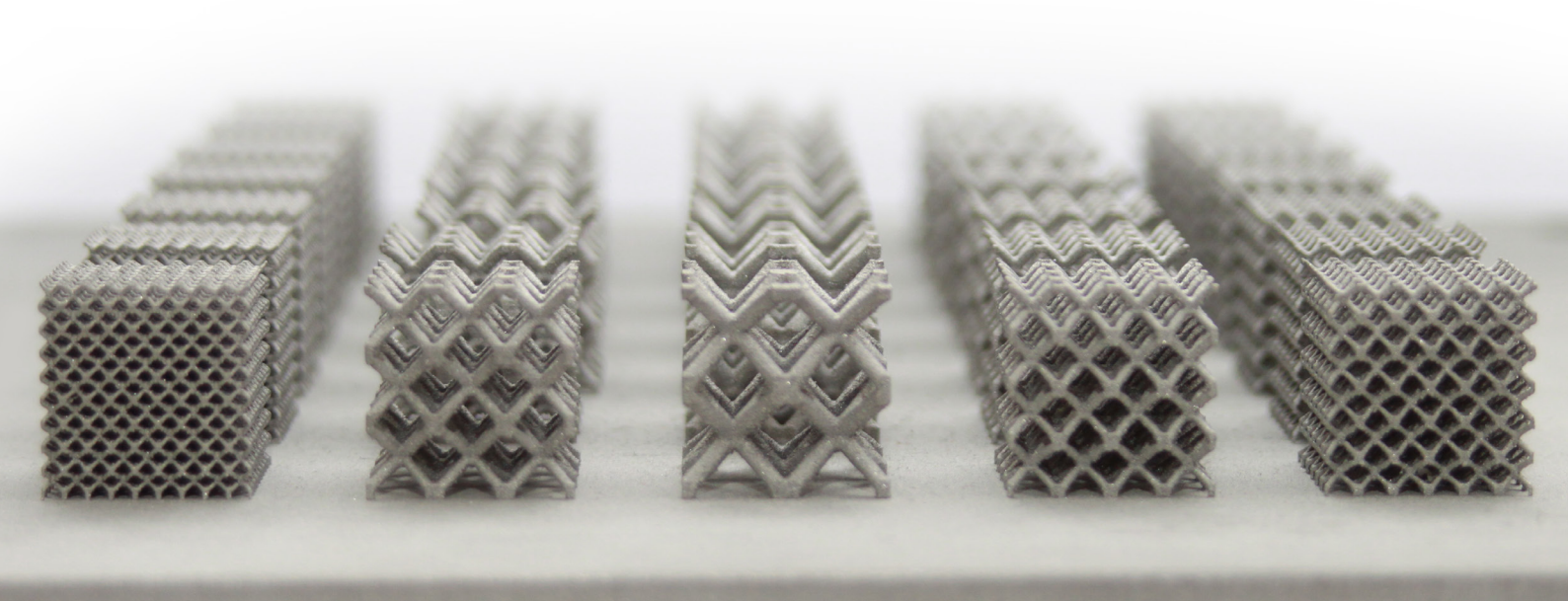
Renishaw follows an open parameter ethos, providing our customers with freedom to optimise machine settings to suit the material being processed and the user's specific part geometry.

With Renishaw's support you can benefit from the freedom to develop your own parameters for your own materials and your specific part geometries without compromising your warranty.

Renishaw supplies a range of high quality metal powders including Ti6Al4V ELI, AlSi10Mg, stainless steel 316L, tool steels, nickel alloys and cobalt chromium alloy.

Software

The Renishaw QuantAM file preparation software has been developed by our experienced team of software engineers specifically for use with Renishaw additive manufacturing systems. QuantAM is designed to be simple to learn and intuitive to use and is an ideal product for new users. More information is available in our QuantAM brochure.



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About Renishaw

Renishaw is an established world leader in engineering technologies, with a strong history of innovation in product development and manufacturing. Since its formation in 1973, the company has supplied leading-edge products that increase process productivity, improve product quality and deliver cost-effective automation solutions.

A worldwide network of subsidiary companies and distributors provides exceptional service and support for its customers.

Products include:

- Additive manufacturing and vacuum casting technologies for design, prototyping, and production applications
- Dental CAD/CAM scanning systems and supply of dental structures
- Encoder systems for high-accuracy linear, angle and rotary position feedback
- Fixturing for CMMs (co-ordinate measuring machines) and gauging systems
- Gauging systems for comparative measurement of machined parts
- High-speed laser measurement and surveying systems for use in extreme environments
- Laser and ballbar systems for performance measurement and calibration of machines
- Medical devices for neurosurgical applications
- Probe systems and software for job set-up, tool setting and inspection on CNC machine tools
- Raman spectroscopy systems for non-destructive material analysis
- Sensor systems and software for measurement on CMMs
- Styli for CMM and machine tool probe applications

For worldwide contact details, visit www.renishaw.com/contact

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