



Russell AMPro® Lab improves efficiency for medical technology manufacturer

Meotec has automated its powder screening process for additive manufacturing with the installation of a Russell AMPro® Lab.

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Based in Germany, Meotec produces orthopedic implants for medical technology manufacturers and engineering companies. The German technology company, which grew out of Aachen University, is certified to ISO 13485 for the manufacture of medical implants and materials.

Meotec manufactures the implants using magnesium alloys. This allows the implants to biodegrade naturally within the body without removal. The manufacturer applies a special ceramic surface coating to each implant to control the time it takes to dissolve. Meotec has also begun a research and development project to analyse and develop medical zinc alloys in order to complement its portfolio of bioabsorbable metals for conventional and additive implant manufacturing.

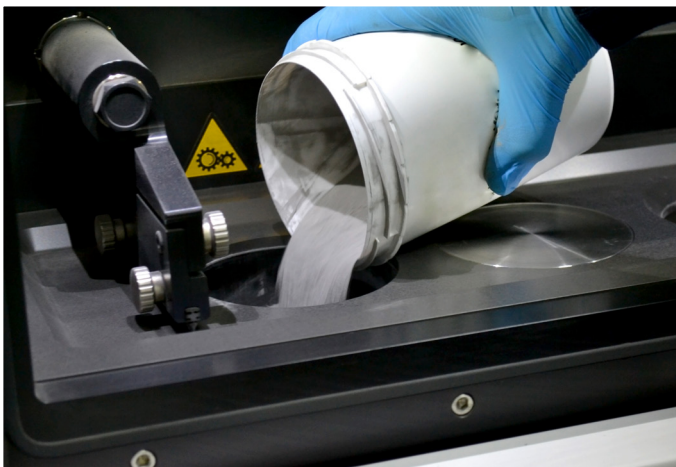


Figure 1: Metal alloy powder

Additive manufacturing is used to develop the possible next generation of macroporose implants from metal alloy powder. Before the AM process can begin, Meotec has to qualify the

powder to remove coarse particles and fine dust, in order to ensure a reproducible manufacturing process. After this process is complete, the used powder can be reclaimed for other products. This requires a further screening step to requalify the powder.

However, as the powder screening stage was manual, this made Meotec's manufacturing process time-intensive. In addition, due to the different requirements of each product, the quantities of powder screened could vary from 300 grams to 5 kilograms. Screening the correct amount added extra time to the completion of each batch.

Meotec's manual screening method also created extra cleaning effort during production. Sieving by hand meant the powder could escape onto operators or other equipment.

Orthopedic implants have different quality requirements that impact the screening process. Some products require the powder to be smaller than 100 microns, while others only use particles smaller than 63 microns. As a result, Meotec needed a screening method that could handle the specialist needs of the medical sector.

Meotec's search led it to discover Russell Finex's powder screening systems. After a series of discussions, Meotec purchased two [Russell AMPro® Lab](#) machines screening various degradable metal powders for research and development projects. The medical manufacturer chose the Russell AMPro® Lab due to its flexibility with material changes and its ability to handle small quantities of powder.

"We are extremely satisfied with the advice and installation of the Russell Finex screening station. We are excited about the continuous improvements of the screening system as well as the fast and reliable exchange with their technical sales department."

Felix Benn, Research and Development



Benn continued, “We are pleased to have a reliable and committed partner in Russell Finex when it comes to screening for additive manufacturing.”

With the Russell AMPro® Lab, Meotec was able to automate the screening stage needed before and after the additive manufacturing process. This reduced the time it took to screen each production batch compared to the previous manual method.

The medical technology manufacturer now has the flexibility to easily change material screening based on the requirements of the finished product. It can use a 25-micron mesh size to remove very small particles and also screen out large particles with a 45, 63, or 100-micron mesh size.

The closed system within the Russell AMPro® Lab reduced Meotec’s cleaning effort as it was now possible to connect a bottle from the printer directly to the system and then remove the bottle with sieved powder directly after sieving.

The key benefits of using the AMPro® Lab are:

- **Compact and efficient design** - Process small quantities of powder from 1 to 4 liters
- **Avoidance of manual screening** - Process small quantities of powder from 1 to 4 liters
- **Handle different powder materials** - Changeable mesh size to adapt to product requirements



Figure 2: The Russell AMPro® Lab

About Russell Finex

Founded in 1934, Russell Finex designs and manufactures sieving machines for a range of industries. With its head office in the U.K. and subsidiaries in Belgium, the U.S.A., India, Brazil, and China the company supplies to over 140 countries. [Contact Russell Finex](#) today to find out more about its range of sieves, separators, and filtration equipment.