

AM quality control specialist uses automated powder recovery for efficient 3D printing



Additive Assurance chooses the Russell AMPro® Sieve Station for its Center of Excellence

Depowdering within the build
chamber

Additive Assurance provides process monitoring and quality control for 3D printed components. Based in Melbourne, Australia, it specializes in (L-PBF) Laser Powder Bed Fusion techniques for customers in the aerospace, automotive, energy, and medical sectors.

The AM quality control specialist provides a unique sensor package using long exposure near infrared methodology for the rapid detection of faults and variations in additive manufacturing. The AMiRIS™ quality assurance system inspects every single layer of the 3D printing process at high resolution and provides detailed analytics on fluctuations and flaws.

Additive Assurance's quality assurance system works especially well with large parts, particularly those using heavy alloys that are difficult to inspect with CT scanning. Its methodology provides the equivalent data stream to CT scanning but in a faster and more cost-effective way.



Russell AMPro® Sieve Station installation

The challenge

Additive Assurance has developed a Center of Excellence to demonstrate its products to customers and create a hub for innovation and collaboration. The facility aims to support research, development, and training within the additive manufacturing industry.

The Center of Excellence is equipped with a TRUMPF/ Sisma Mysint 300 laser powder bed fusion system. Alongside this, the quality assurance provider was also keen to design efficiency into its powder handling processes.

Having worked in the additive manufacturing industry for many years, Marten Jurg, Co-Founder and CEO, had experienced powder sieving and recovery problems within other organizations.

Once a build is complete, the post-processing of L-PBF Additive manufacturing often involves removing and sieving the reclaimed powder manually. However, this is a lengthy labor-intensive process reducing productivity as well as increasing the risk of exposure of the powder to operators.

A further challenge was the limited data available. Most 3D printers provide usage statistics, such as the quantity of powder in the feed and overflow bins. However, data on the powder volume passing through the sieving unit was often missing.

The solution

When Additive Assurance established its Center of Excellence, the Russell Finex **AMPro® Sieve Station** was its first choice for powder recovery. The AM quality control specialist had seen the advantages it delivered through automation for other organizations and wanted to realize the same benefits.

With the Russell AMPro® Sieve Station installed, there is no need for full-time operators. Application engineers who manage the in process monitoring technique can also operate the 3D printer because the cycle time is so short. Compared to manual powder recovery solutions, Additive Assurance has seen a 60 to 70% reduction in cycle time. The Russell AMPro® Sieve Station can remove all unused powder from a build job in less than ten minutes.

One of the biggest benefits of the Russell Ampro® Sieve Station is the auto-dosing and optimised sieving process. The Sieve Station removes the need to manually meter powder into the sieving station. Operators' time is freed up to focus on other tasks within the manufacturing process.

“The AMPro Sieve Station makes life so much easier. The vacuum conveyor system and the sieving operation are an enormous time saver, so we need less headcount for our operations. I can't emphasize enough its usability benefits for us.” said Marten Jurg, Co-Founder and CEO.

Jurg continued, “Support is just a phone call away. And I feel safe in the knowledge that we have local support through our reseller for parts and services.”

The Russell AMPro® Sieve Station provides critical data on powder location to support the quality system. This information allows Additive Assurance to create powder health statistics, such as with the oxygen uptake of titanium materials.



The Russell AMPro® Sieve

Key benefits:

- **Complete automation**
Closed-loop vacuum conveyor removes manual powder handling
- **Powder data logging**
Technical data allows the creation of powder health statistics
- **Fast and efficient powder recovery**
High performance powder recovery and sieving increasing post processing efficiencies

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.