



Leading engineering company commissions fully automated AM powder recovery system with the AMPro® Sieve Station

Printer turnover time reduced by 8 hours whilst improving operator safety for leading engineering company.

In 2020, the company invested in a 15,000-square-foot facility dedicated to additive manufacturing with the aim of advancing product development and tooling using 3D printing technology. It brings together OEM additive technologies to understand what to industrialize and to educate other suppliers on additive manufacturing for the automotive industry.

The facility hosts a range of 3D printers including EOS M400 machines which are used to produce aluminum and steel components. After each completed build, the operators are required to remove unsintered powder from around the components. The metal powder is vacuumed from the build chamber, sieved to ensure the correct particle size, and then refilled into the 3D printer.

The other issue for the company was safety. Metal powders are hazardous to health and have a risk of explosion, so operators have to wear advanced PPE. As a result, there was a need to minimize the time that operators spent handling metal powder.

With the company focused on obtaining the best system to meet their demands, automating the powder reclaim process was a major priority for them to achieve. The company ran an RFQ process to identify alternative solutions. The key criteria were for a capability to protect the safety of operators and significantly reduce the additive manufacturing turnover time. This led the company to choose Russell Finex and the **AMPro® Sieve Station**. Russell Finex demonstrated its track record of technology for handling and transporting powders along with its experience in applying these solutions to additive manufacturing.

“We were looking for a partner to provide a solution and ongoing support to our AM facility. However, it was very difficult to find companies that had capabilities in both material conveyance and also understanding of the risks and hazards associated with additive manufacturing. And those are some of the strengths Russell Finex brought to us.”

- Lead Process Engineer

They continued, “It’s been a very exciting relationship so far with Russell Finex. We’ve been successful in improving the turnover time on the 3D printers, which is the number one metric for us. We’ve also been very well supported. We even had Russell Finex personnel on site in the week before Christmas to get the machines up and running. This meant we could meet all our deadlines for the end of the year.”

With the customized AMPro® Sieve Station in place, the recovery process has been accelerated. Previously it took a



Figure 1: Complete system within new AM facility

The company encountered challenges with the original powder handling solutions for the 3D printers. Powder recovery required a lot of manual effort from the operators. It could take a full day to recover the used metal powder, requalify it, and then refill the printer. This also meant downtime for the 3D printers as, while the powder was being processed, the printer was unable to start the next build.



Figure 2: Complete Russell Finex System

whole shift for the operators to refill the 3D printer but now this can be done in less than one hour. This has increased productivity as four and eight hours are saved on every additive build.

Automation has drastically reduced manual input to the powder reclaim process. Operators now only need to be involved in the first step of the process when evacuating powder from the build chamber. This has improved the safety of operators as less time is spent handling the metal powder and less time wearing advanced PPE.

Russell Finex also partnered with the company to pioneer a new innovative decanting and mixing station for decanting bottles of virgin powder in a fully enclosed inert environment. This allows them to protect operators from exposure as well as providing a simple and effective way for adding virgin powder into the reclaim line without the need for a separate blending step. The AMPro® Sieve Station manages the whole powder recovery process and has resulted in both increased efficiency and maximizing the safety of operators.

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.

The key benefits of using the AMPro® Sieve Station are:

- **Closed-loop powder recovery** - Direct connection to 3D printer allows safe and immediate transport of powder
- **Minimize operator involvement** - Allows complete automation and process integration, limiting operator exposure
- **Reduced production downtime** - Fast recovery and requalifying of powder from the build chamber
- **Supports multiple 3D printers** - Modular design allows for future-proofing when scaling up
- **Prevent cross-contamination** - Minimal contact parts using the Russell Compact Sieve style®