

Pharmaceutical manufacturer increases productivity by over 500%

Our Russell Compact Sieve® increases sterile API microsphere powder screening capacity from 1.5 to 10 kilograms per hour

A leading [pharmaceutical manufacturer](#) produces over 250 high-value, sterile [active pharmaceutical ingredients](#) (APIs) including Octreotide (a peptide hormone medication). These ingredients are the main components within medicines, providing the required health effect.

The manufacturer is the preferred API partner for global pharmaceutical companies that supply more than 100 countries, including regulated markets. Their facilities are equipped with isolators, autoclaves, and advanced sterile filtration systems. It is also compliant with Current Good Manufacturing Practices (cGMP), with auditing by regulatory bodies such as the US Food and Drug Administration.

The API manufacturer uses aseptic manufacturing to produce microsphere powders. These tiny, spherical particles, ranging from 1 to 1,000 microns in size, form a complex drug delivery system for APIs. The manufacturer relies on a multi-stage process to produce microspheres

that meet their customers' requirements and ensure regulatory compliance.

After the initial production stages, the manufacturer sieves the powders at 71 microns using an ultrasonic sifter within a sterile and controlled environment. Once the sieving is complete, the contact parts have to be autoclaved with steam at 125 degrees Celsius for 30 minutes. The non-contact parts are then cleaned with vaporized hydrogen peroxide (VHP) to decontaminate and sterilize the equipment. The manufacturer also uses a solvent wash with heptane before and after the powder sieving.

The challenge

The global demand for APIs is rising due to aging populations, the spread of chronic and lifestyle diseases, and the development of new drug treatments. However, the manufacturer was unable to produce enough microspheres to meet customer demand. The capacity of its ultrasonic sifter was limited to 1.5 kilograms per hour and therefore unsuitable for scaling production.

The manufacturer also faced other screening problems due to their aseptic manufacturing process. Autoclaving created long periods of production downtime, delaying batch turnaround times by several hours.

Due to the high value of API powders and the expensive raw materials, even small delays and process inefficiencies meant a significant increase in costs.



Our Russell Compact Sieve® with side mounted ultrasonic probe

The solution

The manufacturer researched alternative sterile and GMP-compliant screening solutions and discovered our range of aseptic powder handling applications. After discussing the options with our sales engineer, the API manufacturer chose to purchase our **Russell Compact Sieve® MS400** with a side-mounted **ultrasonic probe**.

Since installing our Russell Compact Sieve®, the manufacturer has seen their productivity increase by over 500%. Their screening capacity for APIs is now 10 kilograms per hour, compared to 1.5 kilograms per hour. The new screening capacity matches the size of their delicate, small-batch sterile powder volumes.

The API manufacturer has also solved the problem of extended downtime due to cleaning protocols. One reason they chose our Russell Compact Sieve® was that the probe design ensures it is classified as a non-contact part—avoiding the need for autoclaving—so only VHP cleaning is required. This choice has shortened the cleaning cycle times by several hours per batch.

By using our **screening technology**, the manufacturer has reduced operator handling by 30 to 40% making the process safer for staff. With gentler handling and fewer interventions, the manufacturer has lowered its product loss.

Further benefits include lower consumable and utility usage, due to less demand for autoclaving energy and steam, and improved compliance with isolator VHP cleaning protocols.

“The Russell Compact Sieve with externally-mounted ultrasonics allowed us to reliably screen sterile API powders inside an isolator, meeting stringent aseptic standards. The design eliminated the need to autoclave the probe, saving us hours per batch and simplifying validation. With high-value APIs like microspheres, this efficiency is crucial,” said the manufacturer’s representative.



Our Russell Compact Sieve®

Key benefits:

→ **Increases your productivity**

Our straight-through design provides higher capacity than standard vibrating screens

→ **Reduces your cleaning times**

Easy-to-clean contact parts mean shorter cleaning times

→ **Protects your operators**

The enclosed design contains materials and provides a comfortable environment

About Russell Finex

We are the only manufacturer in the world that makes our own **screening and filtration equipment** alongside **ultrasonic mesh deblinding systems**. We do this for virtually **every industry** around the world and, with over 90 years of experience, we’ve helped the process industry with measurable impact. We do this by partnering with customers to understand how they can enhance their production lines. And with a combination of high-quality equipment, substantial expertise, and ability to customize solutions, we do this by acting responsibly and ethically to our customers and the environment.