



## Russell Compact Airswept Sieve™ provides versatile solution to contained pharmaceutical sieving

### Vacuum conveying sieve integrated within a Howorth WORKSAFE DownFlow Booth and High Containment Isolator to provide contained pharmaceutical sieving solutions

For over 150 years, the Howorth name has been synonymous with innovation in creating safe, clean working environments. Known today as Howorth Air Technology, the company engineers a range of powder containment solutions, Aseptic Systems and ultra clean air filtration ventilation systems for medical, pharmaceutical and other industries. Based near Manchester, U.K with offices in the U.S.A. and representation in Europe and Asia, Howorth delivers high-quality equipment to clients throughout Europe, Asia and the Americas. The company is customer and quality focused, providing bespoke products and turnkey systems to meet the necessary requirements of clean rooms, operating theatres or pharmaceutical production facilities.

When a leading global pharmaceutical company sought multiple bespoke solutions as part of a new production facility, Howorth combined its expertise with that of Russell Finex – a global manufacturer of pharmaceutical **sieving and filtration equipment**. The customer had previously held concerns about operator exposure during the processing of APIs, as traditional vibratory sieves often do not provide the levels of containment required to ensure operator safety. Two systems were required to guarantee containment in two key production areas.




Paul Stanway, Business Development Manager at Howorth Air Technology, said, “Firstly, the customer required a DownFlow Containment Booth, incorporating various process operations such as blending, weighing and sieving. Secondly, a containment isolator, also known as a glove box, was required to sieve and weigh APIs in a fully-contained environment.”

Howorth’s WORKSAFE™ containment booths provide high levels of operator protection, ergonomically and hygienically designed to allow multiple process operations to be carried out. For this specific process, pharmaceutical powders would be pre-weighed, transferred into a hopper then vacuum-conveyed into an IBC via a sieving system ensuring the product is screened to guarantee a consistent particle size and remove oversize and foreign contamination.

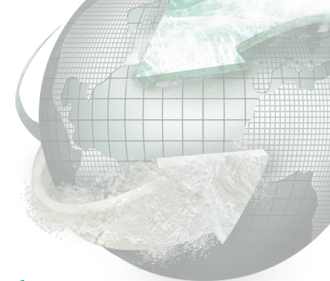
Howorth has a wealth of experience in combining



**Figure 1.** The Russell Compact Airswept Sieve™ fits easily inside a Containment Isolator.

-  **Ensures operator safety** - Dust-tight operation reducing the risk of product inhalation
-  **Compact design** - Fits easily into existing installations and areas of limited head room
-  **Reduces downtime** - Easy-clean and strip down design ensures production downtime is kept to a minimum

containment technology with integrated equipment. On this occasion, a **Russell Compact Airswept Sieve™** was recommended as the integrated sieving system of choice. This vacuum conveying sieve combines industry-proven Russell Compact Sieve® technology with vacuum conveying lines, ensuring powders can be check-screened in one dust-tight operation. The sieving unit is also quick and easy to dismantle, reducing downtime between processes.



As well as DownFlow Booths, Howorth engineers High Containment Isolators to provide fully-contained environments for active product handling. Howorth Isolator Systems combine containment to nanogram levels with integrated equipment to provide maximum processing, ergonomic and maintenance efficiency. For the containment isolator process, APIs would be loaded into the isolator utilizing a drum-loading chamber with the product vacuum-conveyed and screened through a sieve system direct into the same IBC as described previously. On this occasion, a hybrid sieving system was engineered, combining a Russell Compact Airswept Sieve™ with the Russell Compact Airlock Sieve™ clamping system. This custom-built pharmaceutical screener provides all the benefits of vacuum-conveying sieve technology with the patented TLI (twist, lock and inflate) airlock clamping

OEL 5 containment (less than 1µg/m<sup>3</sup>). The system also means these units are quick and easy to dismantle in areas of limited space, such as containment isolators.

Mr Stanway continued, “We chose to work with Russell Finex on this project because of the wide range of compact pharmaceutical screening equipment available, including the Russell Compact Airlock Sieve, which provides a significant ergonomic advantage when operated and maintained within the constraints of a Containment Isolator. Support provided by Russell Finex during the design and mock-up phase was also invaluable. When providing premium custom-built solutions such as this, it is imperative the equipment we integrate is of a high quality, operator-friendly and versatile to meet specific functions and environments.”

With a range of sizes and configurations available, the Russell Compact Sieve® range is ideally suited to integration inside areas of limited room such as pharmaceutical downflow containment booths and containment isolators. These compact screeners provide accurate, high-capacity powder screening at less than half the size of traditional sieving units. Included in this range is the Russell Compact Airswept Sieve™. This vacuum conveying sieve improves production capacity – by up to four times compared to standard vacuum conveying sieves. Dust-tight operation reduces the risk of product inhalation, and its easy-clean and strip down design ensures production downtime is kept to a minimum.

Established in 1934, Russell Finex has over 80 years of experience in supplying customized pharmaceutical sieving and filtration equipment to processing equipment manufacturers and global pharmaceutical companies. A range of high-quality containment, ergonomic and compact options are available to meet the exact needs of specific environments and materials.



**Figure 2.** The Russell Compact Airswept Sieve™ with Russell Compact Airlock Sieve™ clamping system installed in a Howorth High Containment Isolator.

system - designed to provide effortless operation, ideal for integration inside a glove box. An additional inlet was also incorporated to allow for manual scoop-feeding of powders on a smaller scale. To further improve usability, Howorth's glove boxes have an integrated clean-in-place system with hygienic spray balls and a wash hose to allow easy wash-down of equipment after use.

The user-friendly Russell Compact Airlock Sieve™ TLI (twist, lock and inflate) clamping system provides effortless operation whilst maximizing screening performance. The system is easy to use, and requires significantly less space than alternative clamping methods such as toggle-clamps. Simply place the component parts into the base and locate them by twisting and locking the lid. An inflatable seal then locks the components in place. This reduces the dust and improves operators' health and safety, providing



**Figure 3.** The Russell Compact Airswept Sieve™ installed in Howorth's WORKSAFE™ containment booth.