



## Russell Compact Sieve® skyrockets efficiency at New Balance additive manufacturing center

### Russell Compact Sieve® paired with innovative ultrasonic technology increases throughput and prototype iteration at New Balance

Established in 1906, New Balance Athletics, Inc., informally known simply as New Balance, is one of the world's largest athletic shoe manufacturers. Grounded in innovation, the corporation aims to bypass conventional industry practices and provides exceptional products to professional athletes and everyday consumers. One of New Balance's latest innovations is the addition of an additive manufacturing laboratory; along with the production of the world's first laser printed shoe. The Zante Generate is the world's first running shoe with a 3D printed midsole. Composed of Duraform® TPU Elastomer, the revolutionary sneaker is made using a laser sintering process; which converts this powder into solid cross sections using a laser.

A dual-purpose laboratory used for new product development and research, the additive manufacturing facility processes a variety of engineered grade polymers including thermoplastic polyurethane (TPU) and nylon. Initially, New Balance's laboratory began by processing small batch work. However, looking to transition the lab into a larger scale of commercialization, New Balance turned to Russell Finex, worldwide leader in fine mesh separation technology, for a more efficient solution to achieve increased throughput and improved flowability of powder.

Following consultations and a product trial at Russell Finex's specialized test facility, New Balance purchased a Russell Compact Sieve® and Vibrasonic® Deblinding System. This combination not only fulfills the athletic giant's need to increase throughput, but also ensures purity of the processed powders. The Russell Compact Sieve® is a versatile, high-capacity industrial screener that is half the height of a traditional sieve. Equipped with a solid rubber suspension, the revolutionary sieve allows for quieter operation - as low as 70dBA. Designed to minimize cleaning time, the unit is easy to strip down without the need for tools; allowing operators to easily access mesh screens.

According to Daniel Dempsey, New Balance Senior Additive Manufacturing Engineer, the sieving system is an extremely valuable asset to the lab as the company no longer



**Figure 1.** The Russell Compact Sieve® installed at New Balance

-  Increased productivity while achieving accurate particle size distribution
-  Compact design fits easily into existing installations and areas of limited head room
-  Mesh blinding eliminated with the Russell Vibrasonic® Deblinding System

experiences screen build-up; allowing seamless processing of different materials varying in particle size distribution. The inventors of ultrasonic sieve deblinding technology, Russell Finex's patented Vibrasonic® Deblinding System ensures difficult and fragile powders are quickly processed. In addition, the system ensures equipment is kept running at its optimum performance, upholds throughput rates, maximizes the life of mesh screens, and minimizes the loss of good product. "To put in numerical terms," Dempsey stated, "To sieve 20kg of material using the



OEM provided equipment would take approximately eight hours. With the [Russell Finex] sieve plus Vibrasonic, I can do the same amount in roughly ten minutes.”

Now an integral part of New Balance’s 3D additive manufacturing lab, the Russell Compact Sieve® with Vibrasonic® Deblinding System is used every day. For New Balance, using the sieve is critical to aerate powders before the material is entered into a laser sintering machine. Aerating powder increases the flowability of the material, which is required for stable processing of prints running over 24 hours in duration.



**Figure 2.** Selective laser sintering used to produce midsole

Aside from increasing flowability, the **sieving system** has also been credited for freeing time for the additive manufacturing lab’s engineering team as it screens powders much faster than traditional all-day monitored sieves. The addition of the Russell Finex screening system for additive manufacturing has also allowed New Balance to experiment with powder and complete custom batch work in a much quicker fashion. Regarding maintenance, Dempsey states, “I’ve never had to do a single thing with this machine other than use and clean it. It’s fantastic.”

Dempsey summarized the sweeping benefits of the Russell Compact Sieve® with ultrasonic technology by stating, “The system allows us to speed up the sieving process, and we’ve drastically increased our ability to iterate or prototype within the company due to prototyping the article directly and skipping a couple of rounds of injection molding before commercialization. If you think about how that affects things like time to market or the product quality, the more iteration you can do the better product you’re going to end up with.” Dempsey also concluded that the high-capacity sieving capability of the

Russell Compact Sieve® paired with Vibrasonic® Deblinding System has been pivotal in supporting the research efforts in New Balance’s additive manufacturing facility.

For over 80 years, Russell Finex has manufactured and provided highly-efficient fine mesh separation solutions to a **multitude of industries** including: **food, pharmaceutical, ceramics, chemicals, metal powders** and **water processing**. Regarded as a global sieving and filtration specialist, Russell Finex’s innovative equipment ensures operator safety, minimizes downtime, meets strict hygienic standards, and ensures that processed products are of the highest quality and contaminant free.

To learn more about Russell Finex’s full range of innovative fine mesh separation systems, visit [www.russellfinex.com/en/](http://www.russellfinex.com/en/)



**Figure 3.** The New Balance Zante Generate with full length 3D printed midsole