

New Sieve Technology provides faster Product Changeover at Deloro Stellite Plant

Switch to modern sieves cuts product changeover downtime by 300% and achieves ROI in months at coatings operation in Indiana

Output speed is not enough. In processing industries where products share production lines, speed of product changeover can make the difference between healthy and not so healthy margins.

In the quest for greater margins, no processor can afford excess downtime at product changeovers. Nor can they afford excess labor to clean and maintain cumbersome, outdated machines. Yet to avoid cross contamination, especially in bulk powder applications, no corners can be skipped. That's why streamlining the production process from input to final product screening can be critical.

When a coatings processor avoided a production bottleneck by upgrading to a new sieve technology, it saw product changeover accelerate, with rapid payback adding to the bottom line.

"We cut downtime from product changeover in third and enhanced product quality by switching to the Russell Finex Compact Sieves," says Bob Minton, maintenance manager at Deloro Stellite's coatings operations in Goshen, Indiana. "By expediting cleaning, preventing cross contamination and aiding product quality, we achieved ROI on the Compact Sieves in a few months."

A Need for Speed

Deloro Stellite is a global provider of solutions to industrial wear problems, where heat, corrosion and abrasion can limit component life. It produces proprietary metal alloys from cobalt and nickel, which have metallurgical and physical properties suited to industrial wear challenges.

At its coatings operations, sieving was a critical process since the size of powdered metals controls its flowability into customers' weld points in a range of applications. To streamline production and enhance quality, the company planned to add a new sieving process for all initial powder inputs and final powder products at its Goshen, Indiana plant.



Figure 1. Russell Compact Sieves[®] installed at the Deloro Stellite Plant in Indiana

- Mesh blinding eliminated with the Russell Vibrasonic[®] Deblinding System
- Reduces operator involvement, production downtime and maintenance
- Increases product quality

While the company used traditional sieves for lower volume powder classifying, Minton felt traditional sieves were too slow and complex for Deloro Stellite's current needs.

"With 5,000 product variations, we'd have to take apart each sieve, clean it and put it back together 10 to 12 times a day," explains Minton. "We needed a sieving technology that was easier to use than the same old type that's been on the market for 40 years."

The traditional sieves were cumbersome to work on, take apart, clean and put back together. And if the seals weren't aligned properly, they could leak, potentially ruining a product batch.

"Band clamps wore out, bent, broke or cracked, and the seal had to line up all the way around the flange," says Minton. "It took two people to work the seal around large diameter units, with no alignment pins or guides."

Fine powder sometimes worked its way into the clamp bolt threads on these traditional sieves too. When this happened, the sieve operators would call maintenance to have the bolt cut off and replaced with a new one. Maintenance was also called whenever sieve vibration adjustments were needed. All this added to production downtime.

At a bulk powder processing show, a traditional sieve supplier promised to show him an assembly "shortcut" but was unable to put the unit back together. Minton decided he'd had enough of traditional sieves, so began a search for low maintenance units in an effort to streamline the production process and simultaneously reduce man-hours.

Speed Delivered

In search of a solution, Minton turned to a state-of-the-art Compact Sieve® from Russell Finex of Pineville, North Carolina. The unit's design and ease of use impressed Minton, who felt it would expedite product changeover and improve bulk powder processing. A trial proved him right, and now there are four Compact Sieves at the Goshen plant.

"One operator can take apart and put together a Compact Sieve in less than a minute with no tools," says Minton. "Just undo four latches by hand, lift the top off, and then lift the screen out. To assemble it, reverse the process. It seals perfectly. Because the screen drops into a recess, there's no chance of misalignment; and cleaning is easy with a vacuum line."

"Everything's right there, easily accessible," says Minton. "Pop a cap off the end of the motor and there's your vibration adjustments. It's so easy to do adjustments that one of our junior process engineers re-aligned it. We showed him once, and he was comfortable enough to make the adjustments himself."

Minton estimates the new sieve technology saves about an hour a day in production downtime, compared to the cumbersome product changeover process required by traditional sieves. Product output and quality are also improved by the new Russell sieves.



Compact Sieve®

Traditional designs incorporate a spring-mounted base and a custom motor with a pair of eccentric weights at the end of the motor shaft. However, this design lacks accuracy in controlling the force of vibration imparted to the mesh screen, and is typically limited to a speed of 1200 rpm.

In contrast, the Compact Sieves® from Russell Finex omit the need for springs and instead uses a patented rubber suspension system. Combining this with its high speed 1800 rpm vibratory motor and easily adjustable weight system allows much higher forces to be transferred through the mesh screen itself. This creates a more finely-tuned and vigorous action, significantly raising sieving efficiency.

"The adjustable weight system makes it easy to set the machines up," says Minton. "It helps us get the right time on the screens to get every bit of powder possible, while minimizing product loss to oversize."

The design of these sieves can go a step further to increase throughput by using the Russell Vibrasonic® deblinding system in conjunction with the screen. By energizing the wires of the screen mesh with an ultrasonic vibration, the friction between the product and the screen is effectively removed. In the case of the Russell Finex machines, mesh "blinding" is eliminated, helping to move material through the screens faster.

Since the Compact Sieves are crevice-free and entirely constructed from polished stainless steel including their stands, all surfaces are easily cleanable.

"The Compact Sieves make it easy for our operators to quickly and cleanly complete product changeovers without tools," says Minton. "They help with output, product purity, and product loss. Saving even one product batch from possible cross contamination could pay for the cost of the sieves."

"With the new sieves, our customers get a better quality product and better deliverability in the long run," concludes Minton.

Russell Finex of Pineville, NC, has over 75 years of experience manufacturing and supplying separators, screeners and filters to enhance productivity and ensure product quality. The company serves a variety of industries in over 100 countries with applications that include adhesives, ceramics, chemicals, colors, enamels, explosives, food, inks, latex, metal powders, paint, paper coatings, pharmaceuticals, plastisols, powder coating, and waste oils.

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Vibrasonic® Deblinding System

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