CENTRIFUGAL SCREENER INCREASES CONCRETE POLYMER PRODUCTION

Trying to screen a blend of powdered silica sand and liquid plasticiser might sound like a production nightmare, but a centrifugal sifter now available in Australia is doing the task quickly and efficiently at a polymer concrete plant.

Moreover, the plant's output of bagged product has jumped 75 per cent after the sifter replaced a rectangular vibrating screen, according to Tim Mellor of Wamian International which supplies Kason screening products in Australia.

Mellor, who provides screening solutions to Australian customers, came across the installation (a Kason Centri-Sifter) at a Pennsylvania plant on a recent trip to the USA.

"Removing the lumps which occur when sand-silica powder is sprayed with liquid plasticiser is probably the ultimate test for any screening device," he claims.

"But at this plant the Centri-Sifter is doing 1800 kg every 12 minutes, whereas previously it was taking an hour to screen the same quantity via a 25 x 50 mm vibrating screen."

The plant belong to Casec, Inc who produce 16 to 54 kg bags of high-compressive-strength polymer concrete for rehabilitating roads, bridges and airport runways. They also make a 16 mm thick flooring compound whose production requires total elimination of lumps.

According to Mellor, when the old rectangular screen was used, frequent screen blinding required the operator to continually scrape and push the soft lumps of sticky powder through the screen. Screens often failed while the uncovered chamber exposed the operator to dust.

Now the Kason unit sifts the product five times faster and is fully enclosed to prevent dusting. Also, the operator no longer needs to tend the screener and work on the bagging line where an 1800 kg batch is bagged every 15 minutes.

Mellor explained the sifter sits on a narrow mezzanine below a 6 metre high, 3000 kg capacity pneumatic blender and above a surge tank that feeds a ground level bagger.

Lumps of powder as large as 50mm form in the blender as liquid plasticiser is sprayed into the mixture of abrasive silica sand ranging from fine to 1.5 mm.

The powder flows from the bottom of the blender through a boot and 200 mm slide gate valve into the centrifugal sifter. After adjusting the slide gate valve to control flow, the operator can leave the sifter unattended.

In the Centri-Sifter screeners, rotating helical paddles impart centrifugal force to the particles, propelling them continuously against and through a perforated plate cylindrical screen. The de-lumped powder falls through the centre of the separator into the surge tank. A 5 mesh size stainless steel screen passes even the smallest lumps, with no exit of waste.

Mellor says all particles go through the screen, leaving it clean, and requiring minimal cleaning or maintenance. An easy access door with quick-release clamps allows quick inspection, cleaning or changing of screens.

According to Mellor the plant manager tried de-lumping with a lump crusher but the sticky material lodged in the units revolving fingers. He also rejected a circular vibratory separator because it would be too large for the limited space - the Centri-Sifter's frame, on the other hand, is only 610 mm high by 915 mm, which allows it to fit comfortably on the narrow mezzanine.

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