



## Centrifugal Screener Ups Production Of Polymer Concrete By 75%

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# Centrifugal Screener Ups Production Of Polymer Concrete By 75%

Output of 35-75-lb (15.9-34.0 kg) bags of polymer concrete at Castek, Inc. jumped 75% after replacing a rectangular vibrating screen with a centrifugal sifter to remove lumps arising when sand-silica powder is sprayed with liquid plasticizer.

Previously, a 1'x 2' (25.4 – 50.8 mm) rectangular vibrating screen sifted at a rate of 4000 lb (1814 kg) per hour. Frequent screen blinding required the operator to continually scrape off and push the soft lumps of semi-sticky powder through the screen. Screens failed often while the uncovered screening chamber exposed the operator to dust.

The Kason CENTRI-SIFTER™ centrifugal screener sifts 4000 lb (1814 kg) in 12 minutes, and is fully enclosed to prevent dusting. The operator no longer needs to tend the screener, instead assisting a second operator in loading, unloading and verifying bag weights at the pneumatic bagger capable of bagging a 4000-lb (1814 kg) batch in 15 minutes.

## Fits into Tight Space

The sifter sits on a narrow 20-ft (6096 mm) high mezzanine below a 20-ft (6096 mm) high, 7000-lb (3175 kg) capacity pneumatic blender and above a surge tank of same dimensions that feeds the Chantland bagger at ground level.

Lumps of powder as large as 2 in. (50.8 mm) form in the pneumatic blender as liquid plasticizer is sprayed into the mixture of fine and abrasive silica sand.

The free-flowing, friable granules are abrasive, with uneven shaped particles ranging from fine to 1/16 in. (1.6 mm). Bulk density is 100-lb/cu ft (1600 kg/cu.m), angle of repose 60%.

The powder flows from the bottom of the blender through a boot and 8 in. (203 mm) slide gate valve into the centrifugal sifter. The operator controls flow by adjusting the slide gate valve, then can leave the sifter unattended.

In the CENTRI-SIFTER screener, rotating helical paddles impart centrifugal force to the particles, propelling them continuously against and through a perforated plate cylindrical screen. The delumped powder falls through the center of the separator into the surge tank. A 5-mesh size stainless steel screen breaks even the smallest lumps, with no waste exiting.

## Requires Minimal Cleaning, Maintenance

Tony Krisanda, production manager, 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.

The sifter's 2' (50.8 mm) high by 3' (76.2 mm) wide frame and specially-mounted motor allow it to fit on the mezzanine.

Krisanda says he tried delumping with a lump crusher/shredder on hand in the plant, but the sticky material lodged in the unit's revolving fingers. He also rejected a circular vibratory separator because it would be too large for the



*Small footprint of CENTRI-SIFTER centrifugal screener fits into tight space. Access door allows quick inspection, cleaning or screen changing. Slide gate valve (rear) controls flow rate of powder entering the screener from the blender.*

limited space.

During Castek's evaluation of the sifter, Chris Dugan, of Separator Technology, Brown Mills, NJ, sent powder samples to Kason's laboratory, which successfully screened them at the desired production rate.

The centrifugal screener runs intermittently according to customer orders. Krisanda estimates if production were steady, the unit would pay for itself in less than three months.

### **Produces High Strength Polymer Concrete**

Castek produces 35-75 lb (15.9 – 34.0 kg) bags of high-compressive-strength polymer concrete for patching and concrete rehabilitation in roads, bridges, airport runways, and parking decks. Also produced on this line is a 1/16 in. (1.6 mm) thick flooring compound whose production requires total elimination of lumps. The company is a subsidiary of Transpo™ Industries, Inc.



*4000 lb (1814 kg) of sand-silica powder sprayed with liquid plasticizer in pneumatic blender is delumped in 12 minutes using a CENTRI-SIFTER centrifugal screener.*



*A 4000-lb (1814 kg) batch of polymer concrete is bagged in 15 minutes.*