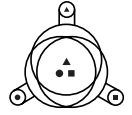


SCREEN

tips

News and application reports on screening, sifting, scalping, dewatering, and fluid bed drying, cooling, moisturizing



KASON

FROM KASON CORPORATION

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Ultra-Sanitary, Gap-Free Screener

A new Vibroscreen® Ultra-Sanitary Screener from Kason Corporation meets cGMP, 3-A, USDA and FDA standards. It features gap-free screen frames, quick-release "U" clamps, radius corners, a domed lid, an Air-Lift device to raise the frames, continuous ground and polished welds, a gap-free and crevice-free interior finished to sanitary standards, and a washable underside.

The external, interlocking flange configuration of the screen frame fully envelops the support ring of the screen, allowing the screen's wire mesh to extend to the interior walls of the frame. The design eliminates the gap between the screen ring and frame wall of conventional screeners, eliminating areas where material would otherwise collect.

"The new screener dramatically reduces the possibility of contamination due to bacterial growth, while improving sanitizing efficiency, making it suitable for pharmaceutical, food and dairy applications as well as chemical applications where cross-contamination is a concern," says Henry Alamzad, Kason president.

Screens are mounted to support rings using FDA-approved epoxy, and sealed using FDA-approved gasket material,

and can be provided with a mesh tolerance certificate.

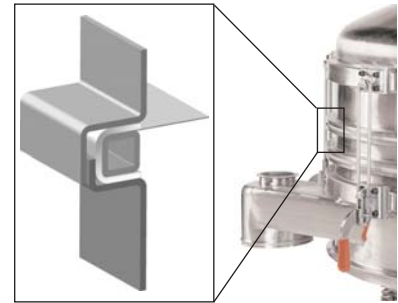
The wire mesh screening material is offered in 304, 316 and "magnetic" 400-series stainless steel that, if broken, can be captured by a downstream magnet.



Adding to the unit's cleanliness are a domed lid, discharge spouts with radius corners, continuous weld seams and material contact surfaces polished to a sanitary finish, and a 4-post, open base with stainless steel motor enclosure allowing thorough wash down of the unit's underside and plant floor.

The screener can be equipped with a Clean-In-Place (CIP) spray wash system, and designed to operate under a nitrogen purge.

The explosion-proof, imbalanced-weight gyratory motor is equipped with Kason's "E-Z slide, quick-force" tool-free, weight adjustment system, and is fitted with an optional "Auto Lube" automatic lubrication system that minimizes bearing failure by introducing fresh lubricant onto the bearing race while flushing it of wear materials, broken-down lubricant and contaminants.



The external, interlocking flange configuration of the screen frame fully envelops the support ring of the screen, allowing the screen's wire mesh to extend to the interior walls of the frame, eliminating the gap between the screen ring and frame wall.

The screener is also equipped with the company's "Air-Lift" system, allowing rapid access to the interior of the unit for cleaning, inspection and/or screen changes. Six lockable U-shaped quick-disconnect vertical clamps allow disengagement of screen frame sections significantly faster than with conventional band clamps, after which the upper frame can be raised pneumatically and locked in place, reducing downtime and allowing one operator to perform what was previously a two person task, depending on screen diameter.

The controls are housed in a lockable panel and can interface with existing PLCs for remote control.



Flavorchem Uses Centrifugal Force to Double Screening Capacity

When Flavorchem needed to screen flavor powders at twice the previous rate, a centrifugal screener offered the solution.

DOWNERS GROVE, IL—Growing demand required Flavorchem Corporation to double production of its flavor powders by replacing an existing vibratory screener with a

Kason Centri-Sifter® three-bearing centrifugal screener, boosting output from 100 lb/min (45 kg/min) to 250 lb/min (113 kg/min) while allowing faster wash downs. A Kason Model MO Quick-Clean Centri-Sifter was specified after extensive research and trial runs, explains David Russo, chief engineer at Flavorchem Corp. "Based on

Cont. page 4

Screening a Million Tons Uninterrupted

In-line pneumatic screener scalps more than a million tons of clay over 25 years without a failure

THOMASVILLE, PA— A Kason in-line Pneumati-Sifter Vibroscreen® circular vibratory separator has screened over one million tons of clay over 25 years without an equipment failure and shows no signs of quitting, according to John Taylor, production manager of The Pfaltzgraff Co., a 190 year manufacturer of stoneware products.

The system moves raw materials from any of ten 50 ft high (15 m) silos containing clay, silica, alumina, lime and other ingredients through a pneumatic conveying system to a central weigh hopper. Ingredients are weighed in sequence and discharged as 3000 lb (1360 kg) batches into a pressurized surge hopper equipped with a rotary airlock valve that meters 600 lbs/min. (272 kg/min.) of material into the 60 in (1525 mm) diameter in-line sifter.

The sifter, designed for 14.7 psig pressure, removes agglomerates, paper scraps and other foreign particles larger 0.074 in (1880 micron), preparing the clay that will form the stoneware "body" and determine its finish. Magnets upstream and downstream of the screener remove iron particles.



Silica, alumina and lime are conveyed pneumatically from silos to a central weigh hopper that discharges 3000 lb (1360 kg) batches into a pressurized surge hopper prior to screening.



John Taylor, production manager, says that screening to a maximum particle size of 0.074 in (1880 microns) is crucial to the fine finish of Pfaltzgraff stoneware.

"Elbows of the pneumatic conveyor lines wear out every 10 to 12 months because the system runs highly abrasive materials three shifts per day, five days per week," explains Taylor, "but aside from screen changes every two years, nothing on the Kason unit has worn out, including the gyratory motor which we lubricate periodically," he says.

How the screener operates

The circular vibratory screener is equipped with an imbalanced-weight gyratory motor that imparts multi-plane inertial vibration to two spring-mounted screening decks, causing oversize particles to vibrate across the screen surface in controlled pathways to the screen periphery where they are discharged. Screening efficiency improves by forcing the particles to pass over a maximum amount of screen surface.

The unit screens a 3000 lb (1360 kg) batch in 5 minutes in-line with the pneumatic conveying system. To prevent sharp, angular particles from blinding screen apertures, the screener is equipped with a "ball tray" anti-blinding device consisting of elastomeric balls that are captive in a narrow space below the top #10 mesh (0.074 in [1880 micron]) working screen and above the #4 mesh (0.187 in [4750 micron]) ball screen. Vibratory action of the screener causes the balls to bounce against the underside of the working screen, dislodging particles wedged in screen apertures.

Oversize particles exit through a discharge spout at the periphery of the top frame. Screened clay exits the bottom frame discharge into a holding hopper, then into a pug mill, which mixes the clay with water before it is conveyed through an auger, cut, wrapped in plastic and stored for up to three months. The stoneware production takes place in numerous manufacturing processes.

Oldest pottery maker in USA

The Pfaltzgraff Company was founded in 1811 in York, PA, by the Pfaltzgraff family of German immigrants. In addition to being a leader in casual dinnerware, the company markets stainless steel flatware and glass beverageware.

The company takes pride in its tradition of craftsmanship, service and quality, to which the screener contributes.

"The screened particles are crucial for the fine finish of our dinnerware, and help make our fine product at a consistently high level," says Steve Blouse, parts coordinator.

"For any piece of equipment to operate for 150,000 hours without a hiccup is unusual, which is why we notified Kason about it," adds Taylor.



Screened clay ingredients are discharged from the Kason in-line circular vibratory screener (top, rear) into a holding hopper, then into a pug mill that mixes the material with water. Cylinders of clay (foreground) are cut, wrapped in plastic and stored for subsequent molding.

Centrifugal Screener with Bag Dump Station

A new Centri-Sifter® centrifugal screener with integral bag dump station and dust collector removes bag scraps and other oversize contaminants from manually dumped bulk materials while protecting the operator and plant environment against dust contamination.

Configured for installation on a mezzanine, the system gravity-discharges into



The system gravity-discharges into process equipment and storage vessels while providing a sufficiently low deck height for manual dumping.

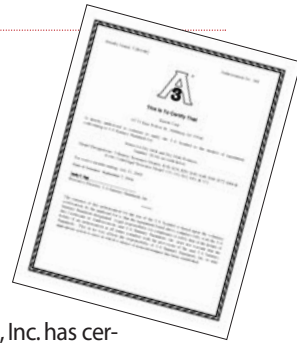
process equipment, and affords a sufficiently low deck height for operators to dump sacks and other containers.

Ambient air and dust from dumping activities are drawn onto the exterior of two cartridge filters that derive vacuum from a top-mounted exhaust fan. Dust accumulated on the filter's exterior surfaces is dislodged by overcoming continuous negative pressure within the cartridge filters, with positive pressure introduced in short blasts on a timed cycle by pulse jet nozzles. Dislodged material falls into the screener while instant resumption of negative pressure collects any dust generated by the filter cleansing operation.

Centrifugal action created by rotating helical paddles accelerates the rate at which on-size particles pass through a horizontal screen cylinder. Oversize material is propelled through the downstream end of the screen cylinder to a discharge spout.

The Bag Dump Screener is constructed of stainless steel and available to industrial, food, dairy and pharmaceutical standards.

Kason screeners certified to 3-A Dairy Standards



3-A Sanitary Standards, Inc. has certified that the following Kason screeners comply fully with the organization's standards for "Dry Milk and Dry Milk Products, Number: 26-04":

- Vibratory Screener Models: K18, K24, K30, K40, K48, K60, K72, K84, K100
- Centrifugal Screener Models: CO, GO, KO, MO and YO

In addition to dairy applications, Kason equipment certified to 3-A standards is often specified for food and pharmaceutical applications to prevent bacterial growth, and for chemical applications to prevent cross contamination during product changeovers.

High-Temperature Fluid Bed Batch Dryer

Kason's Circular Vibratory Fluid Bed Processing System dries small batches of bulk solid materials at high-temperatures. The self-contained system integrates an 18 in (457 mm) diameter fluid bed processor with heater, blower, cyclone separator and controls on a frame, ready for connection to a material inlet/outlet and power source.

Intended for small volume production and laboratory/pilot plant testing, the system dries batches up to one cu. ft. (28 liters). At the end of each drying cycle, a valve at the spout of the fluid bed chamber opens automatically to evacuate the batch.

The system includes an optional high-temperature package that allows drying at temperatures up to 600° F (315° C).

Fines entrained in the exhaust air are collected by an optional cyclone separator and returned to the stream of dried material at a "Y" fitting.

At less than half the size and weight

of rectangular fluid bed processors of equivalent capacity, the circular fluid bed unit allows all primary system components to be consolidated on a shippable frame.

Inherent strength of the circular processor eliminates the need for heavy-gauge walls and cross braces otherwise required to withstand continuous vibration, allowing vibratory motors to be downsized. The circular unit also requires only one air inlet and outlet and has fewer weld seams, reducing overall size and construction cost, especially when finished to 3-A, FDA, and BISSC sanitary standards.

Cleaning time is cut by more than 50 percent due to the reduction in interior seams, and accessibility afforded by a quick-disconnect housing.

The dryer is the smallest of eight models ranging in diameter from 18 in to 84 in (460 mm to 2135 mm), encompassing batch and continuous applications from low-capacity laboratory and pilot plant

testing to high-volume production. All are available configured for drying/heating, cooling or moisturizing applications.



Self-contained, circular fluid bed drying system combines a fluid bed processor, heater, blower, cyclone separator and controls on a shippable frame.

Flavorchem cont. from page 1

laboratory tests with some basic powder flavors, our Kason representative, Bob Steiner (Windum Process Equipment, Sugar Grove, IL), sized the sifter for the flow characteristics, bulk density, and flow rate we required," he explains. "We then ran some of our most difficult products on a demonstration sifter."



The three-bearing cantilevered shaft of the Quick Clean Centri-Sifter® screener enables the operator to open a hinged end cover and remove the screen cylinder and paddle assembly for rapid screen changes and cleaning during frequent product changeovers.

The four basic carriers—cornstarch, yellow corn flour, dextrose, and maltrin—are combined with as many as 10 additional ingredients, both wet and dry, producing free-flowing and non-free-flowing blends having bulk densities of 28 to 50 lb/cu-ft (448 to 800 kg/cu-m).

Centrifugal Force = High Flow Rate

Carrier materials are loaded into an 80 cu-ft (2.2 cu-m) capacity blender in 3000 lb (1359 kg) batches, after which liquid and dry ingredients are added. Following a blending cycle, the batch is gravity-fed into a centrifugal screener whose feed screw redirects the material into the unit's horizontally-oriented, cylindrical nylon screen. Here, rotating helical paddles, which never make con-

tact with the screen, continuously accelerate the flow of on-size particles through apertures in the wall of the screen cylinder and serve to break up soft agglomerates. Over-sized particles and trash are propelled through the downstream end of the screen cylinder and ejected through a discharge spout.

The compact design of the screener allows it to be positioned in a restricted space between the blender and 40 in (1.25 m) high fiber drums being filled with 100 lbs (45 kg) of the material.

Cantilevered shaft allows rapid access to internals

Frequent product changeovers necessitate a minimum of one wash down per shift, a task that incurs minimal downtime, owing to the screener's three-bearing design. The shaft cantilevers on a bearing located between the motor end of the shaft and the material feed screw when the hinged end cover is open, allowing the paddle assembly and screen cylinder to be slid off of the shaft for cleaning or screen changes. During operation, the shaft rides on both shaft-end bearings, with no dependence on the inboard bearing for support.

"The three-bearing design affords smooth operation," adds Russo. "Bearings at both the motor end of the shaft and on the hinged cover at the discharge end provide extra strong support and eliminate vibration at high speeds and loads."

"Operators have cleaned the unit in as little as one hour," reports Russo. "That includes wet washing and blow drying all the assemblies and the machine's interior."

Configured on a caster-mounted frame, the screener can be rolled to a cleaning station, as well as to other blenders, eliminating the cost of multiple units.

To keep pace with continued growth, Flavorchem will triple plant capacity by adding a second three-bearing centrifugal sifter and a 6000 lb (2718 kg) capacity blender. The circular vibratory screener that was displaced has been dedicated to a third blender, while an additional Kason vibratory screener will sift ingredients upstream of a fourth blender.

Flavorchem is a full service flavor company offering finished flavor products as well as R&D to confectionery, bakery, dairy, beverage and other markets.

Parting shot of outbound equipment

Pneumatic resin screeners to scalp 56 metric tons/hr (Per Unit)

Four of these, 72 in (1825 mm) diameter, high-capacity Vibroscreen® Pressurized Sifter separators are shipping to a polyethylene manufacturing plant where they will each scalp 56 metric tons of resin per hour, after the reactor.



KASON CORPORATION

67-71 East Willow St., Millburn, NJ 07041-1416 USA
Tel: 973-467-8140, Fax: 973-258-9533, E-mail: info@kason.com

KASON CORPORATION, EUROPE

Units 12 & 13, Park Hall Business Village, Park Hall Road
Longton, Stoke On Trent, ST3 5XA UNITED KINGDOM
Tel: +44 (0)1782 597540, Fax: +44 (0)1782 597549, E-mail: sales@kasoneurope.co.uk

SEPARATOR ENGINEERING LTD.

2220 Midland Ave., #85, Scarborough, Ontario M1P 3E6, CANADA
Tel: 416-292-8822, Fax: 416-292-3882, E-mail: info@separatorengineering.com

www.kason.com

