Circular Screeners Take Up 85% Less Floor Space at Compounding Plant

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DD-0756

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Linden, NJ Floor space in many manufacturing plants is at a premium, especially in high-priced industrial areas. Manufacturers are often as dogged in their efforts to optimize production space as in guaranteeing that their processes are efficient and productive.

Rotuba Extruders Inc., a custom compounder and profile extruder, operates five blenders and 18 extruders in a 95,000 sq ft (6,038 sq m) plant in northern New Jersey, near New York City. Between machinery, inventory and the transport of materials from one part of the facility to another, floor space is tight. The company looks to minimize the footprint of the equipment it uses whenever possible to accommodate business growth and increased output.

One change the company made to meet this need was the installation of six VIBROSCREEN® circular vibratory screeners from Kason Corp. The screeners, each positioned at the end of a 4.5 in diameter (114 mm) pelletizing extruder from Davis-Standard Corp., remove oversize and undersize pellets. The 24 in diameter (610 mm) screeners replace rectangular screens that were 2 ft (61 cm) wide by 7 ft (213 cm) long, reducing floor space requirements from 84 sq ft (7.8 sq m) to 12 sq ft (1.1 sq m). "The ability to replace the former units with the Kason screeners is a major benefit," says Gil Carmichael, project manager at Rotuba.

Kason circular VIBROSCREEN® pellet classifier with two screening decks was one of six specified for use at the end of pelletizing extruders to save floor space. Rotuba has six 24 in diameter (610 mm) classifiers, each replacing a 2 ft by 7 ft (61 cm by 213 cm) rectangular screening unit.

The Kason units have two screening decks that classify pellets by size. An imbalanced-weight gyratory motor imparts multi-plane inertial vibration to each screening deck, causing pellets to move across the screen to the periphery where they exit through a discharge port. Oversize pellets are removed by the upper screening deck, and on-spec pellets by the lower screening deck, with undersize particles and dust collected and discharged by a sloping lower pan. Pellet sizes and mesh openings vary by material and customer needs, Carmichael notes, but a 1/8 in diameter (3 mm) pellet is common.

Each of the 24 in (610 mm) diameter units screens 600 to 1,500 lb/hr (272 to 680 kg/hr), a rate determined by the output of the blenders that compound different grades. The screeners can, however, separate up to 2,000 lb (900 kg) of pellets per hour, if necessary.

Oversize pellets are scalped by the upper deck of the vibratory screener, with undersize pellets and dust collected and discharged by a sloping lower pan. On-spec pellets are captured and discharged from the middle deck.

Rotuba's ability to maximize floor space is especially important now, since it recently added a line of scented cellulose acetate compounds called Auracell®. Carmichael says the company can duplicate 30,000 scents and is projecting strong demand for the compounds. One growing area is retail displays, where the use of molded and extruded Auracell compounds attracts customers by duplicating scents associated with various products.

According to Carmichael, Rotuba is the only company compounding fragrances with cellulose acetate resins. He says the scented compounds have a life of up to five years. Most scented plastics utilize coatings that quickly wear off, sometimes in days, he adds.

Rotuba, in business for more than 50 years, is one of the oldest compounders of cellulose acetate resins and the largest independent compounder of cellulosics in the world. In addition to the Auracell line, it compounds clear and colored cellulose grades for molded and extruded consumer and industrial products. Examples include tool grips, electrical goods, face shields,

packaging, toys and merchandising displays. Rotuba also extrudes light fixtures of acrylic polycarbonate, polystyrene and butyrate.

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