

## APPLICATION REPORT ENERGY BAR PROCESSING



# Feeding solution speeds energy bar production

**Bariatrix International Inc., Lachine, Canada, produces some of the world's leading nutritional supplements, diet beverage mixes, powders, bars, and meal replacements. In business since 1978, the company has seen rapid growth in their various product lines, but in particular, their nutritional bar products have seen tremendous growth. With growing demand of nutritional food products in the U.S., Bariatrix came to the conclusion that they needed to add a new production line.**

Bariatrix chose to contact Schenck Process for its continuous feeding equipment needs. In addition to Schenck Process, Bariatrix also had its current supplier of feeding equipment as well as another feeder manufacturer provide feeder bids for the new production line.

### Finding the right feeder

In their search to find the ideal feeder for their system, they identified key qualities that the equipment needed to possess. They included quick calibration, high accuracy, flexibility, ease of use, competitively priced, and the ability to feed easily damaged materials.

For further research, Bariatrix sent Schenck Process samples of the materials they intended to use in the feeder. Information on the ingredient characteristics- the desired feed rates and accuracy levels- were also supplied to Schenck Process. After a thorough testing procedure in its Whitewater, WI test lab, Schenck Process

recommended an offset vibratory feeder because Bariatrix was going to be feeding peanuts and other friable materials. The vibratory feeder is able to handle these materials without damaging them versus a traditional screw feeder. Also, the feeder met the accuracies of .5 to 1.5 percent that Bariatrix required.

In addition, the feeder was very simple. The feeder has no moving parts, no flow aid devices, and requires few spare parts. According to the production supervisor at Bariatrix, "The feeder met all of our requirements so we placed an order with Schenck Process."

Because time was critical in the installation of the new line for Bariatrix, they requested a quick delivery date for the feeder. Schenck Process was able to meet their short lead-time.

"It was an amazingly smooth installation process," said the production supervisor. "We tested the feeder twice and were ready to go into production."

### Feeder and process operation

The feeder handles ingredients, environments and application requirements common to the food, plastics, chemical and pharmaceutical industries. The feeder utilizes an eccentric vibrator and tray frame, which can be easily removed for cleaning. The feed tray is fitted with a number slats of varying lengths set an angle and a predetermined distance apart.

This effectively divides the discharge area into a series of material feed slots.

Each slot acts as a vibratory feeder with a gap and overlap across the entire width of the discharge opening. All slot dimensions and angles are fixed to suit the particular characteristics of each material being fed. Therefore, when the vibrations cease, material flow stops under the angle of repose of the product.

For the Bariatrix application, a 12" food-grade feeder with a 10-degree angle was installed. Because the materials being fed are very free-flowing and had a low angle of repose, the 10-degree tray was required. The feeder also came equipped with a 10-cubic-foot hopper, a three-point load cell weighing system, and a panel mount NEMA 4 DISOCNT® gravimetric controller.

The feeder is incorporated in Bariatrix's production line when the bars that they produce require a topcoat of peanuts or other dry bulk solids materials. Operation of the feeder begins with manually pouring peanuts and other dry bulk materials into the hopper of the feeder. To facilitate material discharge, the hopper has an eccentric-style vibrating feeder with a variable frequency drive controller. The variable frequency drive has a range from 0 to 60 hertz. The material feed rate depends on the feeder's vibration frequency; the higher the frequency the faster the feed rate. The hopper has no moving internal components because the steep hopper walls allow material to easily slide down them, and the large hopper opening prevents bridging while allowing gravity to draw material in a mass flow feed pattern.

The material is discharged from the feeder into an intermediate mixer. The dry bulk materials fed through the feeder are mixed with liquid materials in the intermediate mixer. After the liquid and dry materials are mixed, they are spread onto a flat slab of raw ingredients that serve as the material composition of the nutrition bars. After the mix is dispersed onto the slab, the slab continues through a set of drums. Upon exiting the drum, the slab continues down the conveyor and is cut into rows, rectangles or other shapes depending upon

the customer requirements. From there, the bars are enrobed or wrapped in chocolate or yogurt. After cooling, each bar is individually packaged according to customer needs.

The addition of the feeder to their new line has increased production and reduced time for Bariatrix.



*SolidsFlow Feeder takes 4 to 5 minutes to calibrate*

“We needed an equipment piece able to feed at the high rate of our line speeds and this could not have been done without the efficiency of the feeder,” said the production supervisor. “The time saved by the easy to use feeder and the minimal time needed for calibration has been integral in the success of the new line.”

Bariatrix had been using a feeder that took 15 to 20 minutes to calibrate while the SolidsFlow feeder takes 4 to 5 minutes. The feeder can run both automatically or manually. Another benefit of the feeder is the ease of cleaning the unit.

“The process to clean the feeder is only a matter of removing the sleeve and releasing a cable giving easy cleaning access to the internal components of the feeder.”



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