

## Feeding solution

**speeds energy**  
**bar production**

**B**ariatrix 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 in spring 2002 that they needed to add a new production line.

Planning and identifying the proper equipment for the new line began in the spring of 2002. Based on previous work with Firing Industries, a local representative

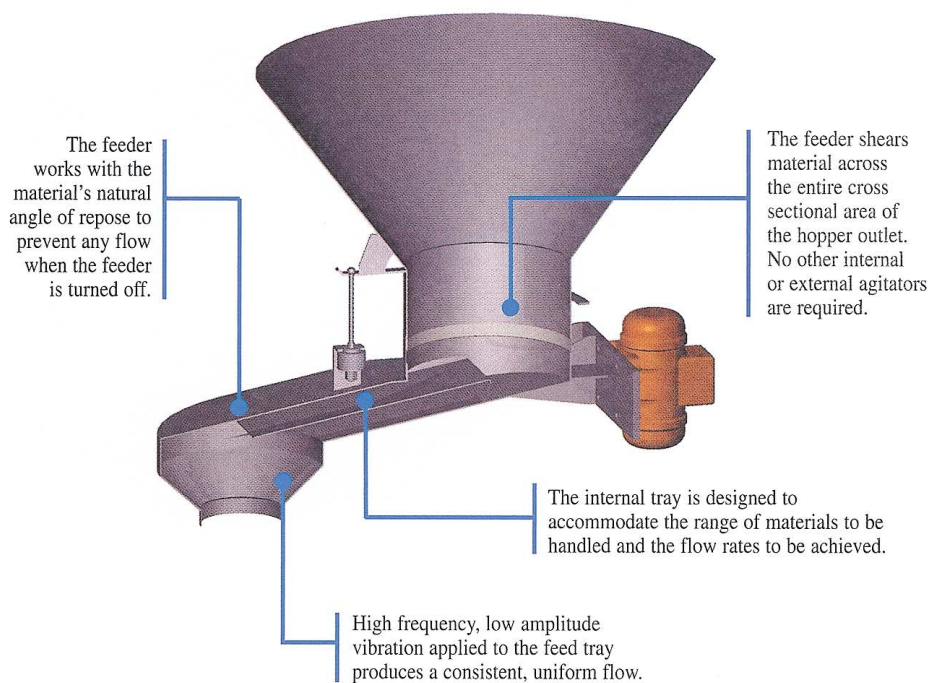
of AccuRate®, a dry bulk solids metering equipment manufacturer, Bariatrix chose to contact the supplier for continuous feeding equipment needs. In addition to AccuRate, Bariatrix also had its current supplier of feeding equipment as well as another feeder manufacturer provide bids for the feeder they needed for the new production line.

**Finding the right feeder**

In their search for finding 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 AccuRate 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 AccuRate. After a thorough testing procedure in its test lab in Whitewater, Wisc., AccuRate 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 Brad Shields, production supervisor at Bariatrix, “The feeder met all of our requirements so we placed an order with AccuRate.”

**SolidsFlow®**  
**Offset Vibratory Feeder**

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

“It was an amazingly smooth installation process,” says Shields. “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 of 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 slat acts as a vibratory feeder with a gap and overlap across the entire width of the discharge opening. All slat 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 DISOCONT® 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 makeup 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 the customer needs.

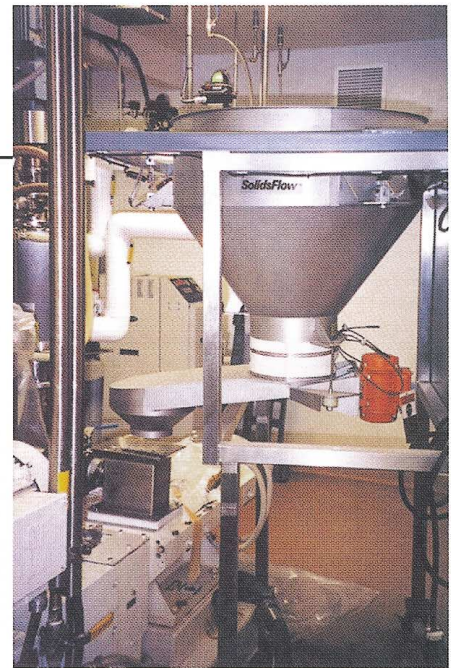
The addition of the feeder to their new line has increased production and saved time for Bariatrix.

“We needed a piece of equipment able to feed at the high rate of our line speeds and it could not have been done without the efficiency of the feeder,” says Shields. “The time saved by the ease of use of the 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.

Shields states that he could run the feeder both automatically or manually, which they were unable to do with their other feeding system. 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.”



SolidsFlow Feeder takes 4 to 5 minutes to calibrate.