Feeders Close The Automation Loop

GIANT Snacks™ of Wahpeton, N. D. prides itself in selecting superior hybrids from contract growers in North Dakota to produce the best Sunflower seeds in the U. S. for its customer base.

From its original recipe of Roasted and Salted Sunflower seeds, Giant Snacks™ has expanded the line to offer a variety of flavors including BBQ, Dill Pickle, Salt and Pepper, Ranch and early in 2009 Spicy Garlic.

Sunflower seeds are sold to consumers in packages ranging from 0.8 oz to 14 oz. To process and package the over 2.5 million pounds of Sunflower seeds each year and meet its growing demand, GIANT Snacks™ operates two eight hour shifts, five days a week.

The snack foods are marketed through distributors where they are sold to convenience stores. Recently, the company expanded into Arizona, New Mexico, California and Texas. Product is also available online and is shipped throughout the United States and Canada, as well as internationally.

“Sunflower seeds are a health-promoting snack with significant amounts of Vitamin E,” said Al Engstrom, Plant Manager at GIANT Snacks™. “Quality assurance is important throughout the production process to make sure that shells are not broken or dirty, are firm and do not have a limp texture. All packages are nitrogen flushed to assure shelf freshness.”

Feeders Enhance Productivity Just as quality is important in selecting and packaging the seeds, totally automating its two integrated packaging lines was a priority for GIANT Snacks™ to increase productivity.

To close the production loop, Giant Snacks™ added twin vibratory feeders from Gough Econ to automatically feed product into existing Gough Econ “S” Series Swinglink™ bucket elevators. Engstrom noted that automating the operation has helped GIANT Snacks™ considerably in meeting our productivity and quality goals.

Supersacks containing roasted Sunflower seeds are hung over the twin vibratory feeders. An opening on the bottom of the Supersacks feeds the seed to the 6-foot long by 1-foot wide vibratory feeders that normally operate at a rate of 3,000 lbs/hour.

Four coil springs on the frame assembly of the feeders minimize vibration transfer and assure gentle handling of the material with minimum breakage. Since product weight is typically in suspension, self-propulsion energy is used in the operation for

added efficiency. Dual motors on the system operate using minimum amps.

Bucket Elevators The feeders discharge the seeds to the previously installed Gough Econ “S” Series Swinglink™ bucket elevators.

The Swinglink™ system consists of 180 nine-inch wide polypropylene buckets impregnated with a glass fiber resin to prevent staining and enable ease of product flavor change.

The buckets remain in a horizontal position throughout the circuit except at the discharge point to the form fill and seal packaging. Keeping the buckets in a horizontal position insures product integrity and keeps the buckets overlapped to prevent product spillage. Like the feeders, the line normally runs at speeds of 3,000 lbs/hour.

“This design ensures free falling of product from the buckets without product spillage,” noted Engstrom. “The smooth bucket surface eliminates product trap areas and provides an excellent means of transfer into a single plain.”

For easy cleaning at the GIANT Snacks™ plant, access panels were included to allow cleaning each bucket with soap and water. Downtime for cleaning is about 4 hours, noted Engstrom.

“The Gough Econ units are a major part of our automation process and have been operating flawlessly,” noted Engstrom. “Support from Gough Econ has been excellent.”

Engstrom noted that the feeders have added reliability and flexibility into the production line and assure gentle handling of the product. He also said that the feeders operate economically and efficiently using minimum power.

Gough Econ feeder vibratory feeders or screens are typically used when applications are beyond the scope of an electromagnetic drive and in particular when units require lengths in excess of five feet and widths greater than 18 inches.

Form/Fill/Seal Packaging Machinery From the bucket elevators, product is pneumatically discharged over the end of each bucket into a hopper and gravity fed into Yamato Data Weight Sigma Plus series scales, a part of the Hayssen/Sandiacre Ultima ST Panel View 600 Model 12–19 fill and seal machine.

The scales have 14 heads, each of which accommodates weights ranging from 0.8 oz to 14 oz. When the weight is selected, the bag is filled and sealed.

After sealing, the package runs through a case taper where bar codes are added along with the size, julian date code, time packed and who packed it. Individual packages are then packed in case packs ranging 12 to 72.

For more information about Gough Econ products, visit www.goughecon.com [1].

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