

Automated Bulk Bag Filling System Streamlines Peanut Processing

Golden Grove founder Lee Swinson, a peanut farmer in Eastern North Carolina, sells his Carolina/Virginia-style peanuts to wholesalers around the world. While some peanuts are made into candy and some are roasted, packaged and sold to retailers, the majority of the 10,000 ton harvest is left raw and sold in bulk. The company's raw in-shell peanuts are packed in 900 lb bulk bags and shipped to customers around the world. As this wholesale business grew, Swinson saw opportunities to improve bulk bag filling efficiencies.

Customer Requirements

Golden Grove employees were manually filling 20 bulk bags per day. Three filling stations each contained a hopper fitted with a slide gate and a scale positioned below. An operator would open the slide gate allowing the peanuts to fall into the bulk bag until the bag was within +/- 2 lb of the target 900 lb weight. The process was extremely slow and labor intensive. Weighing accuracies could be improved to increase profitability as well.

The process also generated some spillage and possible product contamination. If the bag spout was not held firmly beneath the slide gate, peanuts fell on the floor and had to be swept up daily. Operators were easily bored with the tedious process and would sometimes look at their cell phones during filling. On occasion cell phones (and other items) were dropped into the bulk bag contaminating the contents.

Golden Grove required a significantly faster contamination free process to meet the growing wholesale demand. The company turned to Spiroflow Systems who recommended an automated gain-in-weight filling system.

Products Handled:

Raw In-Shell Peanuts

Key Requirements:

- Increase Filling Rate
- Increase Operator Productivity & Plant Efficiency
- Reduce Possible Product Contamination
- Reduce Product Waste



One of three bulk bag filling stations

Spiroflow Systems Solution

Golden Grove initially invested in a single Spiroflow C1-2 bulk bag filling system and the solution worked so well that they quickly purchased two more identical systems. A large elevator conveyor continually delivers peanuts to a hopper installed above each filling station. Each hopper is fitted with a 10" slide gate valve automatically operated by the filling system control panel. The C1-2 Bulk Bag Fillers installed are designed to fill customer specified 40" square bulk bags but can be adjusted to accommodate bags that are 50-64" tall with corner loops 8-10" long. All product contact parts on the bulk bag fillers are constructed from 304 Stainless Steel to meet food safety standards. A flexible connection is installed between the filling head and the base of each hopper as rigid connections would interfere with accurate weighing. A flexible connection is also installed between the bag inflation fan and the filling head. Load cells on each filler are connected to a NEMA 4 certified control panel with digital weigh batch controls, a slide gate valve position control and a bag inflation blower fan.

With the installation of three Spiroflow gain-in-weight filling systems, the number of dedicated bulk bag filling operators was reduced from nine to one. Their filling rate increased to 300 bulk bags per day – a 15X productivity increase! Weighing accuracy increased by more than 400% and product spillage was reduced. The automated filling system eliminated all operator contact with the product which significantly reduced possible product contamination.

The new bulk bag filling system delivers the speed the company needed to meet their growing wholesale business demands. Swinson commented 'Spiroflow is always willing to work with us. Their Controls Engineer worked on-site to program the control panels which was well worth the investment.' Lee added 'Spiroflow bulk bag fillers are simple and durable. The Spiroflow solution delivered the filling speed we needed and more.'



Golden Grove's bulk bag filling stations



Bulk bag filler gain-in-weight control panel



Golden Grove fills 300 bulk bags per day