

Focus on **POWDER & BULK OPERATIONS**

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## Automated filling system maximizes peanut processing

▶ **Productivity has increased by a factor of 15 at Golden Grove since the system was installed.**



▶ **Spiroflow Systems C1-2 bulk bag fillers increase productivity and weighing accuracy at Golden Grove while also reducing spillage. The bulk bag fillers are integrated with a Spiroflow Systems control panel.**

Source: Spiroflow Systems.

**G**olden Grove Founder Lee Swinson, a peanut farmer in eastern North Carolina, sells Carolina-/Virginia-style peanuts grown on his farm to wholesalers around the world. Golden Grove has value-added product lines featuring three distinct peanut products: peanut candy, packaged salted in-shell peanuts and bulk raw in-shell peanuts.

Swinson also has built a wholesale business to market the majority of his annual 10,000 ton harvest. Some peanuts are roasted, packaged and sold to retailers, but the majority of the harvest is left raw and sold in bulk. Golden Grove's raw in-shell peanuts are harvested, packed in 900-lb. bulk bags and shipped to customers around the world. As the wholesale business of raw in-shell peanuts grew, Swinson saw clear opportunities to improve process efficiencies in his company's bulk bag filling.

Golden Grove employees were filling 20 bulk bags each day by hand. Each of three filling stations in the warehouse contained a hopper with a slide gate installed at the bottom of it; a scale was positioned below. An operator opened the slide gate, allowing the peanuts to fall into the bulk bag until it was within two pounds of the target 900-lb. weight.

The manual process had a top filling rate of 20 bulk bags per day and was very labor intensive. Weighing accuracies of two pounds also could be improved to increase profitability.

In addition, the process generated some spillage and possible product contamination. If the bag spout wasn't held firmly beneath the slide gate, peanuts fell on the floor, requiring frequent sweeping. Additionally, some employees were easily bored and looked at their cell phones during the filling process. On several occasions, cell phones (and other items) were dropped into a bulk bag, contaminating its contents.

Most importantly, Golden Grove needed a significantly faster filling system to meet the growing wholesale demand. Spiroflow Systems recommended an automated gain-in-weight filling system.

Initially, Golden Grove purchased one Spiroflow C1-2 bulk bag filler (with a control panel), which is used where bulk bags are filled on pallets and removed by a forklift. The filler has a two-post design, quick-release latchable hooks for suspending the bulk bag, a filling nozzle and inflatable neck seal. The base is mounted directly on an approved load cell weigh platform. Standard features include a stop/start control by set weight, vibration for product compaction, pneumatic neck seal and venting for air displaced during filling. The system worked so well that Golden Grove purchased two more of them.

Each of Golden Grove's three filling stations was set up with a large elevator conveyor that continually delivers raw in-shell peanuts to the hopper. The bottom of each hopper is fitted with a 10-in. slide gate valve operated by the system's control panel. The fillers are designed to fill customer-specified 40-in. square bulk bags but can be

adjusted to accommodate bags 50- to 64-in. tall with corner loops eight- to 10-in. long. The flexible connection between the filling head of each filler and the base of each hopper is required in a gain-in-weight application since rigid connections would interfere with accurate weighing. A flexible connection also is installed between the bag inflation fan and the filling head of each filler. Load cells on the filler are connected to a Spiroflow Systems NEMA 4-certified control panel with digital weigh batch controls, a slide gate valve position control and bag inflation blower fan.

With the installation of three of the fillers, Golden Grove has reduced the required number of dedicated bulk bag filling workers from nine to one, with the single operator filling 300 bulk bags per day, a 15X increase in productivity. Weighing accuracy has been increased by more than 400 percent, and product spillage has been reduced.

“A Spiroflow Systems controls engineer worked onsite to program the control panels, which was well worth the investment,” says Swinson. “Spiroflow bulk bag fillers are simple and durable. The Spiroflow solution delivered the filling speed we needed and more.” ❖

*For more information:*

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