

APPLICATION REPORT SOUP PRODUCTION PROCESS



A Del Monte plant in Illinois is responsible for producing canned soups that appear on grocery store shelves under more than 50 different brand names. The design and supply of the bulk material handling equipment for the plant were provided by Schenck Process.

The starch prep area or “starch kitchen” as it’s called, forms the heart of the soup production process. It is essentially responsible for producing the soup base from a combination of dry and wet ingredients including cracker meal, cake flour, brine, tomato paste, corn syrup and spices. The metered major ingredients and pre-weighed minors are added to water and mixed to form the soup base. The base, combined with various vegetables and meats is then cooked to form a variety of final soup products.

The starch kitchen design chosen by Del Monte called for cracker meal and cake flour to be supplied in FIBCs or bulk bags. Del Monte invited Schenck Process and the local sales representative to design and supply a food-grade bulk bag discharging and metering system that (a) would gravimetrically supply between 750 and 1500 lbs of either material to either of two 900 gallon stainless steel mix tanks in 10 minutes (b) would not exceed 21 feet in height and (c) could be quickly disassembled and cleaned using high pressure hot water.

First, a pneumatically actuated stainless steel turntable was added to a Schenck Process SacMaster® Bulk Bag Discharge Frame. The turntable enables a Schenck Process MechaTron® Coni-Flex feeder to be automatically positioned to charge either of the two mix tanks. A cleaning position was also provided.

Next, the hoist-loaded framework was increased in height so that the feeder could charge either mix tank directly. Eliminating screw conveyors from the design lowered the overall cost of the system and substantially simplified the cleaning process.



With the cracker meal/cake flour supply feeder in the proper position, the operator starts the batching process using the touch screen of an Allen Bradley VersaView® 1500 M HMI station. Weight signals from IP68 rated stainless steel load cells positioned under each leg of the system; control the run cycle of the feeder and the flow of cracker meal or cake flour to the selected mix tank.

Perhaps the highlight of the system design is the ease with which it can be disassembled and cleaned. USDA food-grade materials, clamps, gaskets and design practices were used throughout. Even the Schenck Process MechaTron® screw feeder can be entirely disassembled and cleaned from the free-access side of the system without removing it from the turntable or SacMaster® Bulk Bag Discharge Framework. The Supervising Project Engineer at Del Monte stated, “The operators are all smiles whenever someone asks them about cleaning. It’s that simple.”

When the project was completed, two starch kitchens produced (6) 900 gallon batches of soup base an hour.



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