

Spiroflow Flexible Screw Conveyor Improves Process for Candy Manufacturer

Customer Requirements

The management team at candy manufacturer **Joseph Dobson** began a program to improve and automate selected elements of their operation. The areas for improvement were chosen based on the premise that they must not compromise the heart of their traditional hard candy making process.

All of their improvement measures were targeted towards three key objectives: better hygiene, improved health and safety, and labor savings. For example, sugar for the steam pan was manually weighed into food grade buckets, lifted shoulder high and tipped into the steam pan – an operation they needed to eliminate. It is in this steam pan, a pressure vessel mounted on load cells, that the base ingredients of sugar, glucose and water are weighed, mixed and pre-heated before being transferred to traditional open pans where the resultant mass is boiled to perfection and ready to be mixed with coloring and flavorings.

Spiroflow Solution

A 'Spiroflow' Flexible Screw Conveyor was successfully used to satisfy this application. Initially the conveyor was approximately two and a half times the length it is now and included three bends. This is not recommended! One continuous curve is the norm. Nevertheless, the conveyor operated very satisfactorily this way for 6 years before requiring a new spiral. When the spiral was replaced they decided to shorten the 'Spiroflow' Conveyor to eliminate the unwanted bends. We were also asked to provide a new sack tip hopper for use in the boiling room itself. The resultant conveyor and sack tip hopper give incredibly reliable feed rates.

The load cell mounted steam pan requires a preset quantity of sugar. As the sugar, glucose and water are all added to the steam pan simultaneously, the load cells can only check that the total weight is within tolerance. To ensure that the ratio of oil flavorings, essential oils and color elements do not exceed their legal limits, the sugar content must never be less than the preset quantity but too much more has an adverse effect on quality.

In this application at Dobson's, the conveyor is operating as a reliable, accurate and highly repeatable volumetric feeder. It is delivering sugar from a sack tip hopper to the steam pan about 10' away. For traceability and recording purposes, the performance of the 'Spiroflow' Conveyor is checked and recorded daily. The results show that over a running time



of 9.4 minutes it consistently delivers the required set weight. Dobson's make at least 42 'boilings' during an 8 hour shift. As Managing Director, Stephen Walshaw comments, "We are ecstatic about the accuracy. Spiroflow was brilliant to deal with. They gave us all the support we need quickly and efficiently."

The 20 employees at Joseph Dobson & Sons Ltd are currently producing more than 2 million hard candies each week. Accordingly, the accuracy and reliability of the 'Spiroflow' Flexible Screw Conveyor is crucial to achievement that output. Each boiling is poured on to a temperature controlled confectionery table. Skilled employees then mix and continuously fold the boiling to homogeneously blend in the flavorings, essences, medicinal and color elements to produce 'Yorkshire Mixtures', 'Humbugs', 'Pear Drops', 'Voice Tablets' and 'Butter Mintoos' which Joseph Dobson are renowned throughout the world. The boiling is then shaped and die-cut into individual candy ready for packaging.