

*Bucket Elevator  
Conveyor System  
Increases  
Chocolate Plant's  
Production and  
Improves Quality*



**FRAZIER & SON**



# *Madelaine chocolate plant gets 36% increased production of chocolate from molding plant to packaging machines.*

Madelaine Chocolate specializes in premium novelty and panned chocolate candies. Their 450 employees ensure more than 100,000 pounds of chocolate flow through the factory every day. In addition to distributing their own brand of smooth rich chocolate, the 60-year old Queens, New York company is a sizable player in the competitive private brand business as well.

Successfully competing in the private label, foilwrapped, chocolate business requires production lines that adapt to ever changing sizes, shapes, tastes, wrapper designs and quantities in order to fulfill customer demand. The current 200,000 square foot plant contains 14 molding lines and 8 production kitchens. Madelaine, long known for its premium chocolates' high gloss appearance and those perfectly wrapped chocolate Easter eggs, was being challenged to increase production of their offerings while reducing unit cost.

Faced with a near capacity factory, Madelaine's operations manager Jeremy Kaye, contacted Frazier & Son of Conroe, Texas to design a distribution system to move an additional 36% increase production from the molding plant to a pair of new foil packaging machines. The footprint of this distribution system had to fit within the existing location of the molding plant relative to the foil wrappers.

"Prior to the system upgrade, we would convey the chocolate on a conveyor belt and have it fall into a hopper", said Mr. Kaye. "From the hopper it was brought up on an incline cleated conveyor to the foiling machine. The new system includes a molding line, metal detector, separator, bucket elevator, foiling machine and bagger."

"Now the chocolate is moved in buckets within the conveyor system," continued Kaye. "Using photo eye and height sensors we're able to determine if the machine is low in product and requires more chocolate. The whole operation is done using computer programming and photo eye sensors. Two chutes can feed the foilers and the third chute discharges the overflow that could not get to the wrappers. The product can cycle three times through the elevator conveyor before it is discharged into an overflow bin. This has given us an additional storage capacity of 700 pounds of molded product that can be cycled back into the line should the molding line go down."

The design firm, Frazier & Son, specialists in providing quality bucket conveyor systems for over 55 years, indicated a critical component to the success of the system was to maintain molding production even if a foil wrapper jammed or was delayed during a required foil



wrap change. The solution was a CB-NLC bucket elevator conveyor capable of buffering 17 minutes of production before sending, in this case, foil wrapped Easter eggs to an overflow discharge.

In addition, the company was requested to provide a sorter to reject halves from reaching the foilers. Frazier provided a custom sorter using an Eriez High Deflection Electromagnetic Drive. Since Frazier had refit an older sorter with an Eriez HS 42 in the past, the company had a firm idea of how the sorter should be built to accommodate the capacity desired for this project even though this was a huge increase in capacity. Solid modeling enabled engineers to develop a solution that met with Eriez design parameters for the vibratory drives while building a stout and adjustable sorting deck for Madelaine.



***“The equipment is installed and running perfectly. It is the best production line in our plant. The system has reduced costs by at least \$100,000 annually while increasing production by 36% and delivering a better product because of its gentle handling process.”***

*- Jeremy Kaye of Madelaine Chocolate*



The sorter receives product from the customer’s metal detector on the end of the molding plant line and transfers the product to another Eriez feeder to transfer the product to the elevator/conveyor.

The feeder can stop and start on demand from the elevator/conveyor, buffering product while the elevator decides whether or not buckets can be filled. The elevator/conveyor transfers product to the two foilers on a 50/50 basis, keeping them satisfied with product on a steady basis. If one or both foilers is satisfied, product is transferred to the other foiler or is recycled to the feed point.

The system was designed to provide for a 7x refill before sending product to the bulk outflow point. In anticipation of having to bulk out product, the molding plant line can be shut down in an orderly fashion and the elevator/conveyor will accept all of the product in the system without having to bulk out the product for recycling. If desired, the molding plant can remain running and product can be bulked out and reintroduced later for wrapping. Under either scenario, wrapping can be recommenced when ready since the elevator/conveyor is ready to deliver product.

Frazier used Jacob Tubing stainless steel fittings and tube to transfer product gently from the elevator’s discharges to the wrappers and to the bulk out discharge. Jacob provides sanitary, quick disconnect, tubing system that is easy to dismantle for sanitation and reassembly.

Jan Tec Incorporated provided a new 90 degree turn conveyor to take product from the molding plant to Madelaine Chocolate’s existing metal detector. Frazier & Son and Jan Tec worked closely to ensure that product was transferred between the new equipment and existing equipment flawlessly.

Jeremy Kaye of Madelaine said, “The equipment is installed and running perfectly. It is the best production line in our plant. The system has reduced costs by at least \$100,000 annually while increasing production by 36% and delivering a better product because of its gentle handling process.”

Frazier & Son designs and builds custom sanitary bucket elevator systems for customer’s specific application. Elevator conveyors are available in single or multiple discharge units with continuous or indexed delivery capabilities.

# **WHIZ-LIFTER™** **CONVEYORS**

Frazier & Son custom designs and builds every Sanitary Bucket Elevator to each customer's unique application parameters and requirements



*Frazier & Son, established in 1930, has been providing quality bucket elevators and conveyors for over 55 years. In addition to bucket elevators and conveyors, Frazier & Son has the capability to integrate entire systems, centered around the Whiz-Lifter conveyor, to meet customers specifications and exceed their expectations. A high quality product, application knowledge and superior customer service has kept our customers coming back to us time and time again.*

*From concept drawings to installations, Frazier & Son utilizes our experience in every bucket elevator we manufacture. Providing quality bucket elevators and conveyors is what we at Frazier & Son have been perfecting throughout four generations. Let us show you how We Convey Quality™.*



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