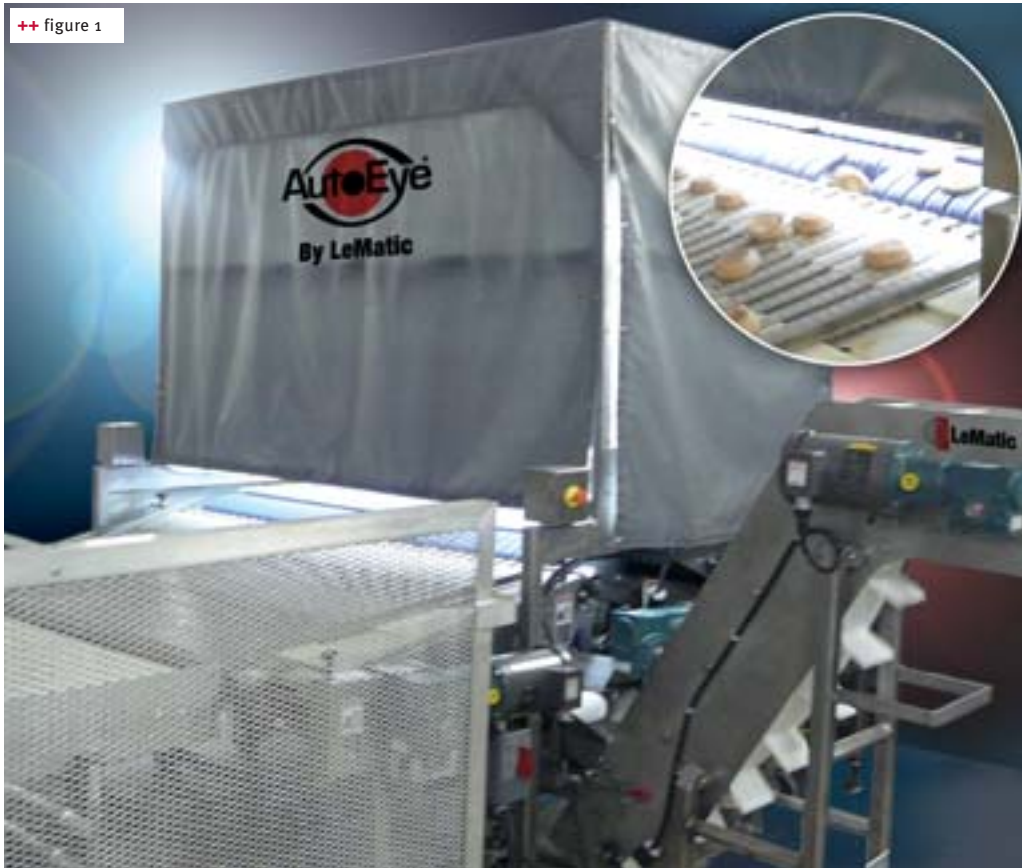


Striking out in a new direction

THE NAME LEMATIC IS CLOSELY CONNECTED TO SLICERS AND CASE PACKERS FOR HAMBURGER BUNS. TODAY, THE COMPANY FROM JACKSON, MICHIGAN, IS HEADING IN A NEW DIRECTION WITH AUTOMATED CASE PACKERS AND OPTICAL CONTROL SYSTEMS

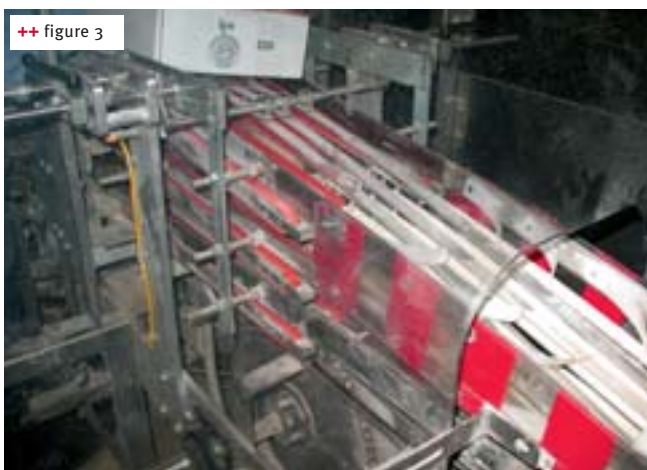


++ figure 1
The AutoEye Vision Control System by LeMatic checks the products and segregates the ones that do not comply in shape and color with the specifications. For this task, the dark-gray fingers retract and force the English muffin into a collecting bin

++ figure 2
CEO Dale Lecrone heads the company founded by his father in 1973

+ Company founder, Dale S. Lecrone is well known in the American bakery trade. A few months ago, he was inducted into the Baking Hall of Fame in recognition of his entrepreneurial spirit and industry innovations. Numerous bun bakeries around the globe are equipped with slicers and case packers that he developed. There are very few English muffin production companies that can operate without his fork-like cutting system. The forks penetrate the muffin

from two sides in such a way as to produce an indented break point so that when the consumer tries to separate the top and the bottom of the English muffins, the product breaks open without producing a clean cut. The bagel slicer that Lecrone invented for market leader, Lengers Bagels, will go down in history. However, time does not stand still and the requirements for the industrial bakery sector have changed and become more manifold.





++ figure 5



++ figure 6

++ figure 3

The previous model stacked the muffins mechanically via belts which is clearly less flexible and more susceptible to faults

++ figure 4

LeMatic's core business: High performance packaging lines for buns and muffins able to fill 35 packs per minute with a maximum packaging size of 28 inch width, 27 inch length and 3.5 inch height

++ figure 5

The same system is available for lines with lower performance, here up to 300 pieces per minute

++ figure 6

A robot picks up English muffins from the baking sheet and stacks them in cardboard trays which are then put into a plastic bag

Dale J. Lecrone, son of the company founder and today's CEO, has reacted accordingly and expanded the product range with two more key products: optical control systems and automation with robots. Lecrone explains, "We are no longer limiting ourselves to the cutting and slicing processes and packaging. We are offering solutions for the entire process flow between cooling and dispatch."

Jackson, in Michigan, is close to Detroit, the largest car city in the US and so perhaps this was the reason behind taking the first steps towards the new product range and the development of the use of robots. The result of this development was pick-and-pack robots supplied under the brand name AutoOp®. The robots are able to remove buns, English muffins and other small baked items at high speed from the baking sheets and place them next to each other or on top of each other precisely in such a way as they appear in the ready-for-sale pack. The number of rows and layers are freely programmable. On one line for English muffins, for example, the robot picks up the muffins with underpressure and places them alternately to the right and to the left in three stacks with two layers each into cardboard trays which are subsequently wrapped by a bag. Lecrone reports, "Previously, the baked goods were combined via belt systems. Such systems are more susceptible to faults than robots and they have less flexibility. With the new systems, the efficiency in this part of the line can be increased, labor saved and process control simplified. This is all in the true sense of my father's work. He lived for finding efficient solutions."

The second new field served by LeMatic today is the optical monitoring of processes and products. Lecrone was introduced to this technology approximately one decade ago in Europe and he took the idea with him back to Jackson.

AutoEye is the name of the product range available in different performance classes. As in all other systems, the largest one, the AE 5000 Process Control Inspection System, with

an hourly throughput of 60,000 pieces per hour, is integrated between the oven and the cooler thus culling substandard products before they disrupt the downstream production. An industrial vision system looks for a variety of product flaws. Statistical information is displayed locally and, as an option, can be communicated to a plant wide process control system. Any product that does not meet the pre-determined parameters is removed by active rejection fingers, which drop the non-conforming products out of the production stream while not disturbing the good product. In the event of a breakdown, a dump chute at the infeed can divert all products. The system can be customized to handle a wide range of products per customer-specific process quality requirements. This technology by LeMatic is mainly used in the production of fresh buns, rolls, muffins and bagels. However, according to Lecrone, the American frozen food industry is increasingly interested in the equipment from Jackson. +++

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