

You wouldn't think that flatbread would be tricky to handle before packaging. After all, Falcone's Cookieland of Brooklyn, N.Y., bakes its crispy flatbread in paper-thin sheets that cool quickly as they leave the oven. But early on, the bakers learned that cooling flatbread involves more than temperature control. There's moisture content to consider, too.

"We get better quality results if we cool the flatbread for an extended period before we wrap it," said Carmine Falcone Jr., general manager of his family's bakery. "That way the product doesn't 'sweat' or throw off moisture in the package and, thus, promote mold growth."

When Falcone's started making flatbread more than a decade ago, operators stacked the warm sheets of baked flatbread on edge in small trays. Then they placed the trays on pans, inserted the loaded pans into

mobile racks and wheeled the filled racks away to cool. The next step was to pull the rack to the packaging line, manually unload its shelves and pans and line up the trays of flatbread on the overwrapper's infeed conveyor.

Every transfer risked damage to the fragile flatbread. The dozens of mobile racks took up every available square foot of floor space in the cramped packaging room. For years, the bakery simply dealt with these problems. The product's increasing popularity, however, proved to be the last straw.

"The truth is that we simply couldn't produce enough flatbread when cooling on racks," Mr. Falcone said. "We ran out of room."

BUSINESS BASE. The story of how Falcone's Cookieland, a family-owned and operated wholesale bakery, became a significant producer of flatbread involves a com-

*Falcone's
Cookieland
automated
flatbread cooling
to smooth out
production ... and
reduce breakage.*

MAXIMUM
COOL

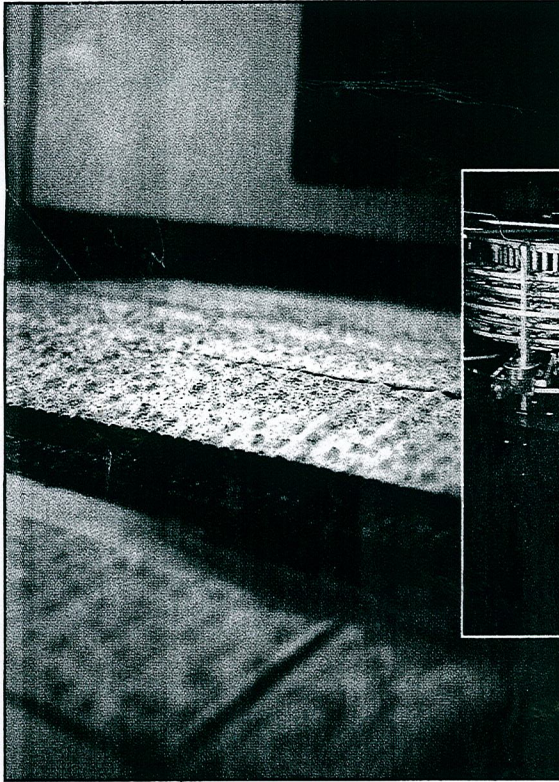
MINIMUM SPACE

BY LAURIE GORTON

Automation, according to Carmine Falcone Jr., general manager and grandson of the bakery's founder, will help Falcone's Cookieland expand its capacities, capabilities and markets.

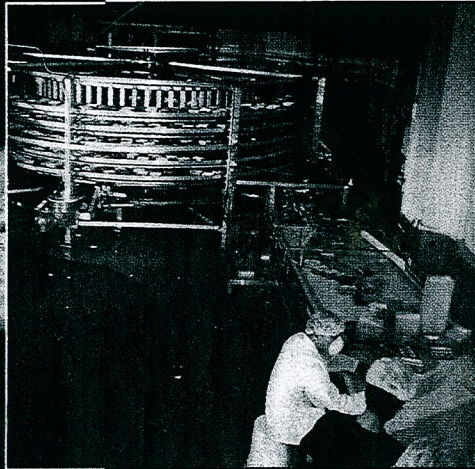


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Flatbread emerges from the hot, high-speed tunnel oven, but it needs to be cooled properly before packaging.

At Falcone's Cookieland where floor space is at a premium, the new spiral cooler handles more flatbread in less space than the dozens of mobile racks the bakery used before.



pletely different line of baked foods: cookies.

"My grandfather started our business," Mr. Falcone said of the retail bakery opened by bread baker Angelo Falcone in 1945.

When Angelo Falcone's two sons, Angelo Falcone and Carmine Falcone, took over the business, they expanded it to five retail locations around Brooklyn. To offer their customers a full assortment of baked foods — bread, cakes, donuts and cookies — the brothers pooled production, making cookies at one location, bread at another. In 1983, however, the brothers decided to go wholesale only.

"Retail baking can be very demanding," Carmine Falcone Jr. said of the family business that he joined first as a dishwasher, then donut fryer and driver. Today he manages sales, representing the bakery to retail grocery, supermarket and wholesale customers. His cousin John Falcone and his brother-in-law Eddie Vacarro also joined the family business.

"We had spread ourselves very thin to manage the retail bakeries," he continued. "It didn't give us enough time for our families."

Italian specialty cookies, popular products at the company's retail shops, launched the new wholesale bakery. Falcone's established its place in bakery wholesaling by making high-quality, yet value-priced, private-label specialty cookies.

Soon after going wholesale, Falcone's located an ideal production plant: a wholesale cookie bakery less than a mile away. It was being sold by a family that had decided to go out of the baking business.

FLATBREAD FACTORY. Flatbread entered Falcone's product line when managers accepted a small private-label contract from a flatbread company.

"At first we made it on a reversible sheeter and a rack oven. But even at such limited rates, we could make more flatbread than our customer could on his own," Mr. Falcone said. "We grew together. More than 10 years later, we continue to make flatbread for this account."

Falcone's Cookieland operates an OU-certified Kosher factory. The company ships its products nationwide, although most of its market is in the East Coast region. The majority of the company's business comes through supermarkets and independent mom-and-pop grocery stores.

The company operates its own distribution subsidiary.

"Anything done on a direct-store-delivery basis works better in this area," Mr. Falcone said. "When you place it on the shelf yourself, it looks and sells better, and it makes the store managers happier."

In recent years, Falcone's management has worked hard to move the business beyond its private label basis. "Now we're looking to establish a name for ourselves," Mr. Falcone said.

That move, however, forced Falcone's to address the flatbread production problem.

TIGHT QUARTERS. Space is at a premium at Falcone's Cookieland. With flatbread on the first floor and cookies on the second, the company uses every foot of the 22,000 sq ft available in its two-story bakery. A second building across the street houses shipping, storage and office facilities.

With the plant full to the rafters, and product demand growing, the one choice Falcone's did not have was to bring in more mobile racks. Instead, the bakery chose automation. It selected an I.J. White all-stainless-steel spiral conveyor and tucked the system into a small bay right next to the packaging machines. Connecting conveyors that link oven, tray-packing, cooling and overwrapping operations complete the automation of Falcone's flatbread operations.

"We always knew about spirals, about how they maximize cooling in the least amount of floor space," Mr. Falcone said. He and his colleagues often saw such systems in other bakeries and at industry trade shows.

Installation proved simple. After the manufacturer assembled the spiral at the factory, Falcone's bakers tested it there. Disassembly and reassembly was quick. The bakery shut down at mid-day on a Friday and set up the cooler over the weekend. Flatbread production started at its usual time on the following Monday morning.

"We had no downtime whatsoever," Mr. Falcone said.

AUTOMATED LINE. Falcone's replaced the flatbread line's original

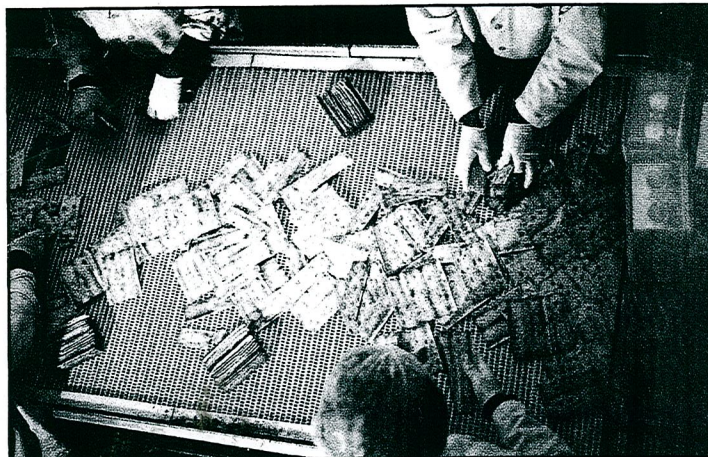
reversible sheeter and rack oven a decade ago with a modern automated laminating and makeup system, integrated with a dedicated tunnel oven.

Flatbread production starts when the mixer operator pushes a button on the KB bulk ingredient system. This signals the system to deliver flour and water into the Diosna spiral mixer. The operator scales minor and micro ingredients manually and starts the mixer, producing a straight dough in the spiral mixer's mobile bowl. (A nearby J.H. Day mixer produces cookie dough that is taken upstairs on an elevator to feed the bakery's two cookie oven lines on the second floor.)

The operator wheels the mixed flatbread dough to the point where it is dumped into the hopper feeding the makeup line. The forming line moves the bulk dough through a series of reduction rollers to produce a continuous sheet of thin, laminated flatbread dough.

The makeup line then makes a turn and sends the sheeted dough through docking and cutting rollers. The makeup system also applies seeds and other condiments to top the many types of flatbread made by

The first step in packaging flatbread is to load it on-edge into clear plastic trays.



Falcone's. Every few minutes, an operator weighs a sample of cut dough pieces to verify quality assurance specifications.

Leaving the makeup line, the cut dough pieces enter the 100-ft-long Bakery Machinery & Fabrication tunnel oven. Flatbread, leavened by steam as well as yeast, bakes quickly.

At the end of the oven, a take-away conveyor accepts baked flatbread, carrying the pieces to the packing table, a slow-moving, white, plastic-link belt. Here,

operators load the warm bread on-edge into clear plastic trays. The filled trays continue down the white plastic conveyor belt, transferring automatically onto the open mesh belt of the spiral cooler.

The loaded trays travel the full length of the six-tier spiral conveyor. The spiral operates by engaging the inside edge of the belt with its central, powered cage assembly, to move the belt forward along supporting tracks. The belt proceeds smoothly around and up the slowly rising path. Packed trays stay in place, encountering no transfers until they reach the end of the spiral track.

The system transfers trays onto a short sloping conveyor that sends them in single file into the horizontal form/fill/seal wrapper for overwrapping. Two wrappers are used, one for retail packs, the other for food service items. At the end of the wrapper, the packages pass through an ADI metal detector and are picked up and manually loaded into shipping cases.

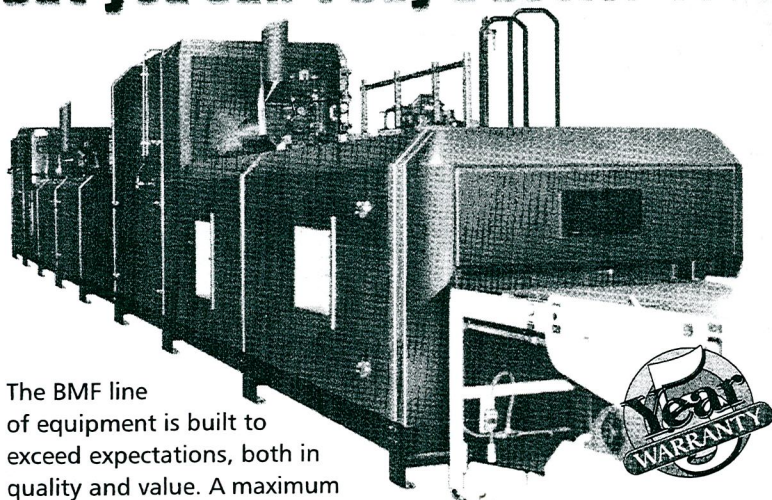
Not only does the spiral conveyor replace dozens of mobile racks, it also reduces the number of times that product must be handled manually from six to two.

"The more you handle a product like flatbread, the more it breaks," Mr. Falcone said. "The spiral cooler eliminates manual handling and actually gives us more cooling time and capacity."

PRODUCTION ON DEMAND. Falcone's currently operates its flatbread line on the low side of its nameplate capacity. Bakers can readily increase throughput rates as demand rises. Sanitation activities take place on Saturday, a down day.

"The system is very low maintenance and low labor," Mr. Falcone said of his flatbread line. Only two operators, including a foreman, are needed to handle

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mixing, makeup and baking tasks. And now that the spiral conveyor rack has eliminated manual loading and unloading, manpower for packaging has been cut to between five and eight people, depending on package style.

"We make to order, and the packing schedule can change daily," Mr. Falcone said. While the bakery makes several different varieties of flatbread, managers usually schedule the line to minimize formula changeovers and maximize the number of sizes run on a given day. Flatbread sizes include retail, food service bulk-cuts and individually wrapped items.

The change in cooling method also prompted an improvement in Falcone's food service pack. Previously, the food service products, which also cool in clear plastic trays, were hand-loaded into a master case, lined with one large plastic bag. Now the trays, longer than those for consumer-packed flatbread, are over-wrapped like the consumer items. Six trays make up one 5-lb shipping case.

"The box is more compact than previously, but the product sustains far less damage," Mr. Falcone said.

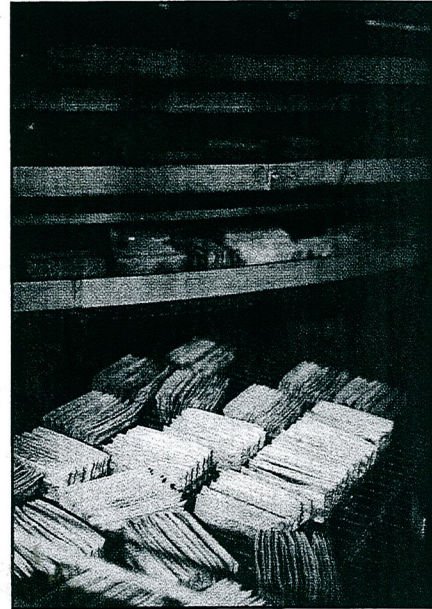
BACK TO WORK. With Falcone's flatbread production facility now positioned for growth, what's next?

"I would like us to be more automated upstairs in cookies," Mr. Falcone said. The company recently installed an I.J. White constant-radius turn to move cookies out of the oven to cooling operations.

Demand for Falcone's cookies picked up considerably during the past year. The bakery recently added a small carton pack for its chocolate chip cookies and introduced individually wrapped biscotti. It also introduced fat-free and sugar-free items. But what has attracted the most attention is the bakery's new line of bulk-packed cookies, offered under the Falcone's CookieLand brand. The line has proved very popular.

"Our supermarket customers can hardly keep these on their shelves," Mr. Falcone said. "These cookies just blow out of the stores!"

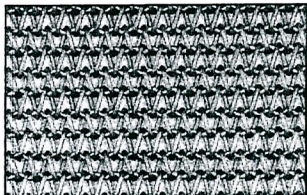
So, what happened to all those mobile racks once needed to cool flatbread? The bakery kept 20 for emergency backup, but the racks didn't stand idle for long.



An hour's ride through the six-tier spiral proceeds smoothly for all tray-packed flatbread. The extended cooling time also adjusts the flatbread's moisture level for best shelf life.

"They're upstairs now," Mr. Falcone said, "in daily use on our cookie line." ■

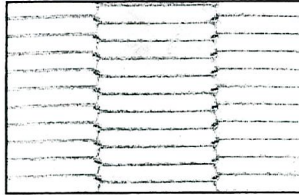
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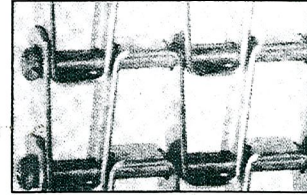
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