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# Baking & Snack®

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## READY SET GO

Gonnella expands its  
Aurora, IL, bakery

**Also inside:**  
Bagel  
Trends







# ALL SYSTEMS GO

Gonnella's newly expanded Aurora, IL, bakery fires up the engine to build momentum now and launch the business into the future.

by Dan Malovany

For the stars to align, it normally takes years — sometimes even decades — for a stalwart business to evolve and complete a transition that sets the stage for the next era of heightened growth.

As Schaumburg, IL-based Gonnella Baking discovered, making the gradual move from being a Midwestern producer of fresh-delivered specialty breads and rolls to becoming a national supplier of frozen premium baked goods not only takes time but also a long-term strategic plan. That's especially true when reinventing a business that's been a Chicagoland institution for 130 years.

To respond to constantly shifting market dynamics and a diversifying customer base, the company initially dove into the frozen dough arena in the late 1970s. Later, it expanded its capabilities by acquiring a manufacturing operation in Schaumburg in 1980 and Hazle Township, PA, in 2007. During that period of transition, Gonnella also purchased an 80,000-sq-ft bakery in Aurora, IL, in 2001 and turned the shuttered facility into a modern, high-speed operation

producing packaged bread, buns and rolls — and eventually par-baked and fully baked frozen items for the food-service, c-store and in-store bakery channels.

Altogether, these three facilities provided ample capacity as the burgeoning baking company carved a coast-to-coast presence. With success, however, came growing pains. In recent years, Gonnella recognized that steadily surging demand for its products could eventually outstrip its production capabilities — especially for frozen bread and buns.

## Firing up production

To respond to this challenge, Gonnella placed a calculated bet — the company knows there's never a sure thing — with a multi-million-dollar investment in its Aurora bakery. Today, it's all-systems-go at its newly expanded 107,000-sq-ft facility.

Following a 58,000-sq-ft addition completed last year, the Aurora plant's new bread and bun line increases the throughput of the original operation by more than 60%. Buns seamlessly march out of the continuous proofer and oven at 800 pieces a minute compared with 550 pieces a minute before.

But that's only half the story. The facility has been outfitted with the infrastructure to install a second bun line that could quickly double bun production to 1,600 pieces a minute. Specifically, major systems — the ingredient handling, proofer, oven and automated pan handling

Three spiral coolers handle production from the upgraded hearth and new high-speed bread and bun lines.

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The high-speed divider and makeup system turns out dough balls with pinpoint accuracy that has helped increase the bakery's yield.

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units now installed — currently run at 50% and can be expanded to handle the new load in a matter of weeks.

The integrated operation is outfitted with all the latest process controls and specifically designed to streamline changeovers, enhance quality and improve yield while

offering sanitary design to meet the vital BRC certification standards that major retail and foodservice customers demand from their suppliers. And it's designed for future expansion without any heavy lifting.

"The whole design of the operation is not only for today but also to have the ability to expand it again very simply and very quickly when we need it," noted Michael Redick, vice-president, special operations, who joined the company in 2014 as it broke ground on the expansion. "The structure is already there. All we need is to add equipment or add on to the equipment that's been installed."

Moreover, Gonnella reconfigured the original 60-year-old facility to maximize floor space and upgrade the existing bread and bun line to produce a wide swath of hearth-baked goods, including baguettes, subs, extra-long breads and French rolls, just to name a few. (See "Hearth breads 'bake to differ'" on Page 36.)

### Expanding its universe

Overall, the revitalized Aurora bakery now enables Gonnella to serve two rapidly growing but distinctly different categories of customers, according to Tom Marcucci, vice-president, sales and marketing.

First, Mr. Marcucci noted, the company contract manufactures custom-designed par-baked and fully baked goods distributed in bulk and incorporated into meal solutions by many of the nation's largest food manufacturers. In fact, its products can be found in everything from frozen breakfast sandwiches to pizza bread and dinner entrees in the freezer case and beyond.

Second, the company custom develops a host of

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### Aurora shows off its colors

Gonnella Baking's transformation of its Aurora, IL, fresh bakery reflects the best of greenfield and brownfield projects all in one. During the past two years, the company expanded its operation to build a high-volume bread and bun line with the latest bells and whistles in programmable controls. At the same time, it remodeled the existing 70-year-old facility and added a significant amount of hearth baking capacity.

However, it's not often that companies have the opportunity to go "green" and "brown" at the same time, noted Michael Redick, vice-president, special operations.

"A combination of brownfield and greenfield is where you have a manufacturing presence and are looking to consolidate, upgrade or technologically improve what you do," he explained. "That's what happened here. We were looking at adding capacity and consolidating manufacturing facilities. The physical building here was not capable of handling expansion to a second line, so we added a greenfield piece to the back."

A greenfield facility, he observed, should not be for current needs but for future expansion of operation to add capacity, create new products or streamline distribution costs — maybe all of the above.

"A greenfield plant is great if you are going into a new area where you never established a manufacturing presence in the past," Mr. Redick said. "If Gonnella were to expand its operations on the West Coast, for instance, that would likely be a greenfield plant."

hearth and panned breads and rolls, which are shipped to regional and national foodservice chains, c-stores, supermarket in-store bakeries and grocery outlets scattered throughout the country.

Together, Mr. Marcucci pointed out, these two complementary initiatives strive to satisfy the seemingly unabated appetite for specialty and artisan-style breads among customers of all sizes in recent years. "Gonnella has always been recognized as a baker of high-quality specialty breads," he said. "We like to say we were baking artisan breads more than 100 years before the term became popular. We've always been an artisan baker, and we're now being sought out as a source for these breads."

To better serve its customers, Gonnella last year opened a new, 34,000-sq-ft centralized distribution center in Schaumburg just a few miles from its headquarters. The temperature-controlled facility can store 1,900 pallets. Common carriers and customers can pick up products for national warehouse distribution. Around 30 routes serve local customers in addition to third-party distributors.

### All stages in place

Ramping up capacity at the Aurora bakery took a two-pronged approach that combined intensive research during the planning stage with improvisational thinking during the execution phase.

For 18 months starting in 2012, Gonnella's project management team began partnering with select key vendors — specifically AMF Bakery Systems, Shick Solutions, Stewart Systems and Workhorse Automation — leaving no stone unturned as it scouted out the latest in technology by visiting bakeries across the US, according to Michael Lucchesi, Aurora plant operations manager.

The team then turned to consultant Marron Hak, founder and owner, Industrial Bakery Engineering, Inc., for assistance. For the existing building, Mr. Hak recommended removing and reshuffling older equipment in the mixing area to create space for two automated string lines that will double the output of the recently consolidated Chicago bakery's hearth operations. Such a task wasn't easy, especially since most of the work had to be done during production or in those rare two- to three-day down periods.

"It was challenging to undergo such an expansion while serving our customer base," Mr. Lucchesi said. "It was a tremendous amount of work making changes such as expanding the flour system, while operating on a daily basis."

To enhance labor efficiencies on the new high-speed continuous line, the bakery created centralized operator

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Above: While increasing production rates by providing on-the-fly cross splitting, a programmable, nonstop water splitter also eliminates potential product damage that can occur when proofed dough is abruptly stopped.

Vito Palmisano





access points that provide a clear line of sight throughout the production department. This design concept required that all process equipment be placed or integrated within a tight circular space, thus bringing all operators within close proximity to all systems.

As a result, only four people — one each for mixing, makeup, proofer and oven, and pan handling — plus a supervisor, work per shift. “We doubled the output of our other line and halved the number of the people op-

erating it,” Mr. Lucchesi noted. “And we have room to add another bun line.”

Gonnella also took advantage of vertical space. Instead of maximizing space in linear fashion, it went 3D to leverage the height, length and width of the entire new addition. “Square footage on the floor is expensive,” Mr. Redick said. “Cubic footage doesn’t cost as much. By building a higher facility, it allows you to put functions overhead so that you have more floor space in a smaller footprint.”

The new high-speed convection oven, one of the largest of its type ever built, was resized to more than double the air flow for a uniform bake due to the supersized pan sizes.

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The robotic pan handling system streamlines changeovers from seven to three minutes. Its mechanical fingers delicately pick up multiple pans at a time, then the two robots stack or unstack them while production shifts from one product variety to another.

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In the older bakery, the ceilings are only 15-ft high, but in the expanded section, they're 34-ft tall. If Gonnella hadn't seized cubic space by going vertical, the size — and cost — of the building would have been dramatically greater. "We probably would have had to expand the facility by 25 to 30%," Mr. Redick said, noting that it would have translated into an additional 10,000 to 15,000 sq ft.

Use of vertical space can be seen throughout the new operation, where few pan conveyors reside at floor level, except for entry and exit junctions between equipment process points. Rather, most conveyors are placed overhead using unoccupied space.

To enhance sanitation and maintenance, major utilities are enclosed on a mezzanine above the production area. To reduce space, two sets of prefab 20-by-20-ft modular offices are stacked atop each other to provide immediate access and observation points by key managers and to support the quality assurance, maintenance and production departments. A fourth office serves as the bakery's training room.

Moreover, Gonnella went wide — very wide — instead of long when it came to actual production. The new line's 38-by-44-in. bun pans — some of the largest in North America — can hold up to 64 pieces, more than double the amount on the older pans. The new pans also provide higher output at a slower rate, which reduces wear-and-tear on pans, belts, conveyors, servo motors and other components. All equipment, Mr. Lucchesi stressed, was custom-built to handle the super-wide pans. "In production, it's not how fast everything is moving," he said. "It's all about throughput and your yield at the end of the day. That's the name of the game."

### Mission in control

The lines typically run two 10-hour shifts, five to six days a week. Slightly more than 160 employees work at the bakery, which now has about 52,000 sq ft of processing and 40,000 sq ft for packaging, 7,800 sq ft of warehousing and

## Hearth breads 'bake to differ'

With the expansion of its Aurora, IL, bakery, Gonnella Baking significantly ramped up its overall hearth bread and roll capabilities by remodeling its existing bakery and reconfiguring the production line to handle baguettes, French, Italian and other specialty breads and rolls.

Following the consolidation of its downtown Chicago bakery last June, the company moved a CraftMaster 52-in. bread and roll line. Supplied by Gemini Bakery Equipment/KB Systems, the low-stress makeup system produces both hearth and pan products from 4-in. up to 36-in. long. This spring, the company is doubling capacity by installing a second, twin CraftMaster line.

Each line can produce 9,600 rolls per hour or 2,640 Italian loaves. Gonnella's most popular rolls typically range from 9 to 12 in. in length while the loaves vary from 30 to 36 in. for its signature "extra longs." Both lines feed the existing Pulver Genau 128-ft tunnel oven, which provides greater throughput than the old Chicago plant.

"Some of our largest customers are consistently ordering hearth-baked products," said Tom Marcucci, vice-president of sales and marketing. "We have several large — emphasize *large* — customers who are purchasing various sizes of French rolls by the trailerloads. These lines allow us to take our time and do things right by properly scheduling production, meeting specifications, offering precise consistency and ensuring high equality that exceeds what we have been able to do in the past."



7,600 sq ft of space for office and support departments.

The bakery stores white and whole wheat flour in Shick Solutions 150,000-lb silos. In addition to a fourth silo, the expanded bulk handling system now includes greater capabilities for distributing soy oil and corn syrup from 50,000-lb tanks to both production lines. Flour is transferred via use bins while an expanded minor ingredient department adds batches via a bag dump transfer station to the mixers' scales.

**“The whole design of the operation is not only for today but also to have the ability to expand it again very simply and very quickly when we need it.”**

**Michael Redick, Gonnella Baking**

The bakery also installed a new Shick Solutions automated ingredient management system that integrates front-end batching and provides real-time production scheduling, lot tracking, inventory tracking, formula management and advanced security to reduce operator errors and guarantee product quality. Mr. Redick described it as “not your grandfather’s batching system” where operators used to log in data by hand. “Now, we have an automated batching system. You put the orders into the system, and it produces a schedule for that day,” he noted.

As a part of the bakery’s realignment of production, Gonnella installed two new AMF 1,300-lb horizontal mixers on its hearth line. The bakery then moved its existing Shaffer 2,200- and 2,500-lb mixers to the new continuous operation to handle its higher volume. A third mixer will be added when Gonnella installs the second bun makeup system on the panned line. Both lines feature newly installed AMF dough chunking systems with a mobile hopper and vertical belt conveyor that seamlessly shuttle dough from mixers to feed multiple makeup lines.

On the continuous roll line, an AMF extrusion divider with a new auger system, stainless steel manifold and Flex Pumps cranks out up to eight pieces per stroke at up to 150 strokes per minute, depending on the product’s size. “To go from using Model Ks to the extrusion divider was a game changer for us,” Mr. Lucchesi said.

Independent servo-driven motors, he noted, allow the divider to operate at a higher rate and with greater accu-

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## GONNELLA BAKING



racy —  $\pm 1\%$  with no divider oil. It also automatically adjusts the dough entering the individual vanes to maintain the ongoing accurate weight of dough pieces throughout the process. Line operators, he noted, check the weight of dough pieces every five minutes using a scale that records the information for process control. The dough balls travel through a set of Teflon-coated aluminum rounder bars and receive a 2-minute intermediate proof before dropping into the supersized pans.

“It’s all about quality and throughput. That’s the name of the game,” Mr. Lucchesi said. “It’s such a highly competitive market. Any adjustments that you make can help give you an edge in the end.”

Meanwhile, on the bread line, an AMF two-pocket extrusion divider currently pumps out 120 pieces per minute, although capacity can be ramped up to 150 pieces when needed. The divider’s Waukesha positive

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The Aurora plant’s new bread and bun line increases throughput of the original operation by more than 60%. Buns seamlessly march out of the continuous proofer and oven at 800 pieces a minute compared with 550 pieces a minute before.

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pumps provide precise dough weights, according to Mr. Lucchesi. A simple auger drive moves the dough to the suction side of the positive pump, where a dual-knife assembly slices the dough into pieces.

After passing through a bed of rounder bars — which can be flipped up for cleaning or replacing to produce different products — the pieces receive a dusting of flour and get a short rest as they're conveyed onto two sheeter and cross-roller systems before dropping into five-strap pans.

### Ready for takeoff

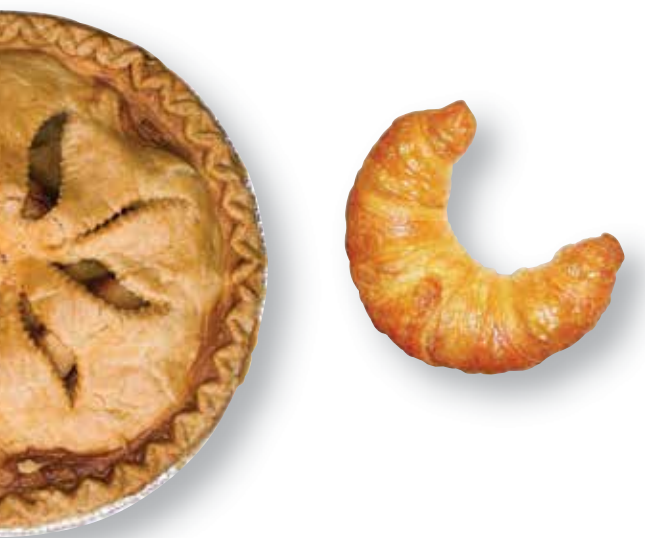
During *Baking & Snack's* visit earlier this year, the continuous line cranked out hot dog buns. After a short rest, the row of pans marched into the Stewart Systems Titan conveyORIZED proofer and oven — one of the largest systems of its type built in North America and designed to double production by installing additional conveyor length and energy-efficient servo-driven motors, according to Mr. Lucchesi.

Typically, buns proof for about 55 minutes with the pans moving through a double-loop conveyor configured

with a low entrance and exit from the system. The patented magnetic pan grids accommodate a variety of pan sizes and shapes, allowing quick changeovers. The controlled-environment proofer uses a downdraft conditioning unit along with temperature and hygrometer controllers to hold a relative humidity within very close limits ( $\pm 1\%$ ).

After proofing, products pass through a specially designed Burford HXR 1000 water splitter. Gonnella collaborated with Burford to program the dual-servo splitter that relies on a tracking system to automatically guide, turn and adjust itself and provide the pre-programmed cut for each product. While increasing production rates with its on-the-fly cross-splitting, this nonstop water splitter eliminates product damage that can occur when proofed dough is abruptly stopped.

With its quick-change manifold design, this system adds a lot of flexibility to the production line by providing the ability to create a wide variety of custom product designs. "It can make anything from a brat bun to a roll with three crosscuts, straight cuts or even angled cuts," Mr. Lucchesi noted. "It's a unique system that allows us



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## GONNELLA BAKING



Following a 58,000-sq-ft addition completed last year, the Aurora plant allows Gonnella to better serve its customers..

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to run at a higher rate of speed by not having to stop and rotate the pans prior to entering the splitter.”

Bake times range from 12 to 16 minutes for buns and about 24 minutes for bread. The conveyORIZED oven comes with some zone controls where operators can adjust top and bottom heat to better control the baking process. The lower front burners first set the bottom of the product while the central burners establish the main bake, and the final burners determine the color prior to exiting the oven, Mr. Lucchesi noted. Adjustments are quick and simple, he added. If buns are coming out a shade too dark, operators can turn off a burner to adjust the bake, often within 2 to 5 minutes.

Additionally, the oven recirculates air once per minute to eliminate cold corners and results in more consistent products. The new high-speed convection system was resized to more than double the air flow for a uniform bake due to the larger pan sizes.

Three PLCs — one each for the pan conveyors, proofer and oven — control times, temperatures and other variables and constantly ensure that the actual proofing and


baking conditions are within the pre-set standards. If operators need to adjust the bake, for instance, they can do it via control panels on the production floor.


“With the proofer and oven, we struck a home run,” Mr. Redick noted. “Normally, we don’t even need a person in this area to monitor it. It runs that smoothly.”


After passing through a Capway depanner, pans are cooled and cleaned before recycling via AMF BakeTech pan conveyors to the front end of the process. Mr. Lucchesi noted the Workhorse Automation robotic pan handling system streamlines changeovers from seven to three minutes. Its mechanical fingers delicately pick up multiple pans at a time, then the two robots stack or unstack them while the rest of the production line is shifting from one product variety to another. Like the other major systems, the Workhorse system can easily double capacity by adding a third and fourth robotic system.


### Exploring new frontiers


Both panned and hearth production lines are supported by a central packaging department that houses 10 lines,

 **Product Inspection**


  
**Tortilla**


  
**Bread**





  
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including two bread, three bun, two individually wrapped product lines and three roll lines. Bagged products are shipped in corrugated boxes or bread baskets and trays.

Within the past three years, Gonnella prioritized a major initiative to automate handling of individually wrapped (IW) baked goods. Today, buns flow down from coolers and, using a series of aligners and indexers, eventually split into two rows where buns race single file into the Delta IW wrappers and then to a proprietary robotic and case loading system. The company also installed proprietary robotic capabilities. The end result? "We had 17 people individually wrapping products before," Mr. Redick said. "We now have two."

With its increase in national sales, Gonnella is exploring ways this year to reconfigure its packaging department to more efficiently accommodate capacity requirements and the demand for new packaging formats. "We're looking to replace older equipment with state-of-the-art systems," Mr. Redick noted. "It's a matter of finding the equipment that best meets our needs."

In many ways, Mr. Marcucci noted, the addition is so

new that the "dust hasn't even settled on the shiny equipment." Heading forward, he added, Gonnella has created a path for continuous improvement throughout all of its operations that complements its customer service guarantee.

In the Aurora facility, integrated process controls now monitor everything from recipe management to baking in real time and record changes when operators make any adjustments. "It's a pretty all-encompassing system that takes the data, compares it against our metrics, correlates it for us, identifies our yield-time and analyzes our other goals in real time," Mr. Lucchesi said.

Moreover, he noted, the company's management operating system incorporates enterprise resource planning for each individual department and evaluates performance on a daily basis on each production line. The goal is to overlap best practices from the best in the food industry with the family company's core values.

Such a blueprint, Mr. Marcucci added, lays the foundation for the future. As time goes on, Gonnella Baking is set and ready to go now that all of its star bakeries are aligned to handle whatever opportunities unfold. ●

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