

Baked goods plant realizes 60% energy savings



A major industrial bakery gains multiple benefits by switching from an energy inefficient drying system to an air drying system by Paxton Products

Replacing an old, energy-hogging air-drying system with a state-of-the-art new one designed by Paxton Products enabled a major wholesale bakery to cut energy costs at one of their Canadian facilities by over 60%. The new, more efficient Paxton drying system also resulted in improved working conditions, enhanced product appearance and increased customer satisfaction levels for the baked goods production plant.

The bakery Plant Manager told Paul Eckert, their Paxton distributor, "I can't believe how well the Paxton system operates. We should have got this system a long time ago. Every month we remained with the old equipment, it's like we were throwing money down the drain in wasted energy costs."

Delivering fresh products to market quickly and maintaining a scrupulously clean and dry facility are two factors critical to success in the baked goods industry. A major Canadian wholesale bakery needed a way to rapidly dry its flat plastic delivery trays designed to hold bread, buns and other baked goods. Residual water on the reusable crates after cleaning caused the bakery products to become damp, which displeased customers and created a potential sanitation concern. The blowing system the bakery used not only failed to thoroughly dry the trays but also used excessive amounts of energy. In addition, that previous drying system was noisy, difficult to access for cleaning and maintenance procedures and required frequent filter changes.

The plastic trays return from the distribution network via truck and are placed on a conveyor belt which moves them through a cleaning process then dries them as the belt delivers them to the production floor to be re-filled with fresh bread, buns and other baked goods. The tray cleaning and conveyor belt system operates on two single-file lines at a speed of approximately 22 crates or 55 ft per minute with each lane divided into three sections.

The old, ineffective and energy wasteful dryer came as part of a bundled washing and conveyor belt system. That system's cleaning and conveyor belt capabilities were acceptable, but it lacked the necessary air velocity to dry the trays, plus it used extremely high levels of energy.



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Blue plastic trays are dried by Paxton nozzle manifold

The old system used 6 blowers per lane, at 7.5hp each, utilizing a total of 90hp of combined blower power. Although there were air knives located on top and bottom in each section, the bottom ones had been disconnected due to the difficulty involved in access and maintenance.

Faced with this dilemma of an inadequate blower which caused a line bottleneck while sending energy costs soaring, the bakery company sought a better solution for their drying needs. They contacted Paul Eckert, president of Eckert Machines, an Ontario-based Paxton distributor. Eckert, like other Paxton distributors, carefully reviews existing plant

equipment, space limitations and electrical systems, in order to suggest air solutions tailored to client needs.

Eckert Machines retrofitted the existing washer/conveyor belt equipment with a Paxton air drying system that included only three blowers totaling 45hp as compared to the old system's 90hp. They removed the old system's heating elements, since Paxton products operate through high velocity, targeted air rather than the old method of heating large volumes of undirected air. They then placed Paxton blowers directly on top of the conveyor belts and also installed air knives and nozzle manifolds directly above and below the crate conveyors for highly targeted, powerful drying. The Paxton system directed drying air from both above and below to the newly washed trays emerging from the washer on the conveyor belt, shearing off all traces of water. Eckert integrated several products designed by Paxton's design engineers, including enclosures, air knives, connector sleeves, filters, silencers and nozzle manifolds.

The Eckert Machines team installed the Paxton equipment on-site, integrating the components into a system custom-tailored to the bakery's unique needs, and providing training to staff in operating the new system. "We were pleasantly surprised at how easy the new system was to use and maintain as compared to the old one," says the Plant Manager.

"The thing that makes the Paxton system so much better than our old one," said the bakery Maintenance Manager, "is that Paxton's equipment directs extremely targeted air at a much higher velocity. The old system made a lot of noise and used a lot of power but the trays still came up with drops of water on them. What's amazing is that the Paxton unit dries so much better yet demands less energy than the old one."



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XT-500 blower powers two cone manifolds drying the tray bottoms

“Within days of installing the Paxton system, we saw improvements we didn’t even expect,” explains the bakery Plant Manager. “We contacted Paul Eckert for new equipment because of the failure of the old equipment to thoroughly dry the trays, which was a serious problem for us in terms of product quality and client response, since any amount of dampness on the package, even when the product itself is sealed, makes the baked foods less appealing. We also hoped the new Paxton system would provide some energy savings, we thought we might shave maybe 20% off our expenses there. What we saw was our energy usage go down much more than we’d even hoped for.”

The bakery’s energy usage for tray drying dropped by 60 - 70% following the introduction of the Paxton products. The company’s decision to replace the old equipment with 3 Paxton systems resulted in a direct Return on Investment (ROI) of less than 12 months. This is in addition to the less immediately quantifiable factors of increased worker satisfaction from using less noisy, easier to maintain equipment as well as enhanced customer relations as baked goods are delivered in thoroughly dry trays.

This major industrial bakery has expressed interest in replicating the Paxton-delivered energy savings and efficient drying throughout the plant where Eckert handled the initial installation. They also have long-term plans to install Paxton equipment at their other facilities throughout North America.

“With the old equipment, we didn’t even realize how bad it was, until we got the Paxton equipment and saw the possibilities for how good things can be,” observes the Plant Manager. “Upper management is looking at how we can replicate the energy savings we gained through the use of Paxton’s products throughout this plant and elsewhere in order to improve our bottom line.”



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