

EUROPEAN **BAKER**

Supporting the international baking & biscuit industry

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Advances in oven technology are improving the baking process for many industrial bakers the world over with European innovations often leading the way as bakers seek better quality, quantity, energy saving and efficiency.

After mixing and forming the dough for the desired product to be baked, the next major step is the line sending the product into the oven for baking.

And this step is the source of the major expense as energy costs are rising, as is demand for baked goods, so bakers are kind of in a catch-22 situation here. But all is not lost. Many oven manufacturers the world over are seriously looking at costs for the baker and research and development is ongoing with some exciting innovations already out on the market place. It is a given that all bakers are aware that the traditional baking process consists of convection, conduction and radiant heat transfer mechanisms. But how can this be made more efficient and allow bakers to increase their flexibility?

HEAT GENERATION

For starters, one can change the heat generation systems by altering the different forms of convection, direct-gas-fired and radiant heat and surrounding them with dielectric modes, which results in changing the heat transfer rates.

This altering of the baking constants allows the product attributes or characteristics to be manipulated to achieve the desired products and product quality consumers seek in the marketplace.

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But as newer oven technologies are implemented, it becomes much more important that the upstream unit operations such as mixing and forming be more consistent. This means dough mixing from batch to batch must be consistent so that every dough batch has the same rheological properties as possible, minimising any dough variations which will become apparent in the baking stage.



The WP Matador is a tried and trusted efficient unit.

It all begins with mixing because it is the key unit operation in the baking process, whether is biscuits, baguettes or bread. In addition, the forming unit operation will need to be as consistent as well to have constant product flow to the oven and uniform dough weights. If these attributes are maintained, then the final baked product attributes will be consistent and, therefore, minimise any packaging concerns downstream of the ovens.

Among the leaders in energy-saving concepts is German giant, the WP Bakery Group with its GreenEnergy label concept, for example. WP says, quite correctly, that bakeries belong to the most energy intensive business in the artisan field. The operation of the ovens, cooling devices and other electrical equipment, it states, account for 5 per cent and more of total revenue for most industrial bakers. As ovens have the highest amount of energy consumption WP has developed systems which save and use energy more efficiently.

The company's most recent introduction is billed as a 'magical energy saver'. This is the Rototherm Ee, a baking cabinet with a rotating rack trolley. WP says it offers superior baking quality and energy savings that can be realised in the baking process. The Rototherm Ee, they claim, consumes 25 per cent less energy than its predecessor. A spokesman said this had been proven in tests in EP's Dinkelsbühl facility and on trials with some customers before the launch in March this year. The high energy efficiency is achieved with a new heat exchanger constructed of high quality Avesta stainless steel. The new insulation concept with completely insulated sides and a double baking cabinet bottom with integrated insulation also contributes to the energy savings.

There is the Matador oven with its Zyklotherm heating system which uses up to 30 per cent less energy than comparable ovens while the energy balance of the WP Pellador ovens is impressive with the CO₂-neutral burning of naturally finished wood pellets.

"Ovens which are marked with our GreenEnergy label save money for the baker. Energy which has been produced once should not just vanish but be used for further operations," said Ulrich Hirsch, WP's Product Manager Ovens. The WP in-store Matador Store and Superior ovens boast new software integrated into the oven control which uses the principle of full use of energy for the highest quality. The plus here is that the ovens turn themselves off when empty. Based on pre-set waiting time selected by the baker, the oven maintains a target temperature, for example, for 'batch to batch' baking. So, after the waiting time has elapsed the temperature drops to a level that ensures the pre-set heat-up time will be met.



Specific ovens are needed for artisanal bread types.