

PROVIDING TURN-KEY SOLUTIONS FOR *THE BAKERY MARKET*

International Bakery sits down with Stefania Montalti, Communications Manager of CEPI Spa, specialists in the design, manufacturing and installation of bulk-handling systems of raw materials



Image Credit: CEPI

One of the main factors we consider when designing installations is the preservation of food properties and flavour.

This outlook is built both into the development of our technologies and the way we design our automatic dosing systems.

Our storing solutions are built in suitable top quality materials and are designed to be easy to clean, with multiple filtering and sifting systems to enhance food security. They can be fitted with technologies such as double-jacketing or dehumidification for hygroscopic products. We perform a study of room temperature and humidity and provide our customers with instructions for the correct maintenance of their working environments.

We have also developed an exclusive welding technique to prevent pollution and contamination in stainless steel equipment and our fabric silos employ antistatic HT Trevira fabric with patented technology to ensure equipotentiality. We provide a hot treatment to sanitise our outdoor silos, which removes microorganisms and infestations. The accuracy of our automatic dosing systems ensures precision in the dough, protecting the unique flavour of each recipe, and includes FIFO management of ingredients which greatly enhances the traceability process.

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PROTECTING THE QUALITY OF FLOUR

For bakery lines and flour specifically we also provide fluidisation and technologies to ensure natural maturation and stability of temperature.

Correct and linear management of the dough temperature is essential in bread-making. Seasonal changes cause considerable variations to the temperatures of work areas and raw materials, impacting leavening times and creating unevenness in the finished product. CEPI offers a centralised cooling system for a gradual and automatic reaching of set temperature, based on the direct exchange of pre-cooled air through a fluidised bed and able to independently take the flour to the temperature required for further processing. This system eliminates the need for cooling agents such as cooled water or ice, which not only add unnecessary costs to your process but lead to instant

decreases and unstable temperatures through time. The progressive cooling of the CEPI system guarantees higher stability and precision, and homogeneity in the dough with thermal exchange acting directly on every flour particle.

All storing solutions can be equipped with a fluidisation system that allows for chronological extraction with FIFO logic, greatly enhancing the traceability process. The flour oxygenation operated by the fluidised bed leads to a crucial improvement in the quality of the flour, with a faster but natural maturation that improves the flour's rheological properties without using additives. Fluidised flour is much better for breadmaking, with better responses to all treatments from dough preparation to fermentation. The dough is more elastic and easier to work. It absorbs water more easily and keeps gas in more easily during leavening. Bread made from well oxygenated flour is softer thanks to a more alveolar product, and more digestible as oxygenation allows for longer leavening.

ACCURACY THROUGHOUT

Accuracy is the necessary goal of any good bulk-handling installation for the food industry, as it serves the double purpose of protecting the unique flavour of the product and ensuring that all safety and health concerns regarding ingredients are met.

The systems we provide for bakery lines provide high accuracy both in dosing of macro ingredients such as flour and that of minor ones such as aromas and inclusions. Our automatic dosing systems cover every operation from loading to dosing, ensuring the repeatability and precision of the recipe, and as mentioned, we provide FIFO management for all products (even unpackaged ones) and full traceability for macro, medium and minor ingredients both powdered and liquid.

As well as the automation, we provide Trimix, a broad spectrum dosing solution for micro ingredients, as well as a blending and premixing station that can be used both to mix ingredients before dosing or in place of the dosing hopper.

Trimix is capable of handling a wide range of challenging materials such as powder milk, powder cocoa and salt. It has an easy-to-clean design with an air blade system to clean the bearings, and comes with technologies to prevent leakage in the surrounding environment and leftovers within the storing units or scale. It is suitable for continuous dosing in big production lines, without clogging or the formation of bridges even for hygroscopic ingredients such as crystal sugar.

The three in one station weighs the ingredient, separates air from product during pneumatic transport and at last blends, all in a single unit. The vertical blender inside is a system for the production of premix that ensures the highest flexibility across a wide range of food sectors, optimising mixing and production times as the blend is already homogenous before reaching the mixer. It is fast, accurate and clean, delivering a homogeneous mix of powders even for quantities lower than 1% in the span of 3-5 minutes. It can mix ingredients before dosing or be used in place of the dosing hopper, and its speed makes it very suitable for continuous mixing systems.

FULLY AUTOMATED

CEPI provides a turn-key system that includes full automation. The design of the dosing system is a delicate process that requires a close analysis of all the manufacturer's processes in order to fully

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optimise their production. Not only is all of our hardware and software design done in-house, but we have refined this process to perfection. The systems we design are customised to match analysis of raw materials, site evaluation, environment and consumptions in order to guarantee taste and integrity of the final product. They cover all operations from loading to conveying to dosing, as well as operations such as washing or climatizing.

On top of repeatability and constancy in the recipe, our automated systems provide full traceability of materials, enhance communication with other software and ERP, reduce consumptions, powders and pollutions, generally improve hygiene with total separation between production and warehouse, improve working conditions and reduce human error, optimise space in the production area and warehouse. Last but not least, our systems are easy to adapt or expand including the addition of new ingredients due to the flexibility of the process.

CEPI's touch panels can be fully customised and are developed across both Siemens and Allen Bradley platforms. They handle recipe creation and management, ingredient →



Image Credit: CEPI

and hopper parameterisation, synoptic overview with real time status and maintenance of utilities with manual command, loading of silos and other stations, and any other functions like washing and climatisation. Other options include CEPI's native PLC and weighing processor with LCD display, for standard operations and one-line production processes.

CEPI's native software Tracking System provides complete traceability including digitalisation of all ingredient movements, lot control with barcode system and warehouse management, greatly enhancing food safety and the optimal management of related alarms. Receiving and visualising data from the touch panels managing the production, Tracking System creates a history of storing and recipe production operations, providing production analysis with statistics of ingredient consumption, batch report with deviation analysis, stock visualisation and dynamic graphics illustrating product, recipe or lot trends.

CEPI's automation system is interconnected and can exchange information with any third party in the line. Our solutions provide full horizontal and vertical integration, managing dialogue and data among our devices and those of other partners, after the dosing and before the raw ingredients management. All our data can be easily integrated with global ERP to achieve organisation-wide traceability. It can generate important information for not only for the production departments and

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management, but for departments such as quality control (lot usage information for each raw material) and purchases (schedule of raw material purchase, spare part purchase).

THE SOURDOUGH REVOLUTION

Sourdough bread is tastier, more fragrant and healthier. Easy to digest and with a high nutritional value, it achieves a long-shelf life without preservatives, meeting the increasing demand for food manufactured through processes that preserve and enhance the natural properties of its ingredients.

Rye, wheat and multigrain breads but also pizza, focacce, brioches and crackers: in the last two decades, the defining factor in bakery manufacturing has been the rediscovery of sourdough, and the development of technologies that make artisan quality possible on an industrial level.

CEPI's fermentation technology includes fermenters and bread re-work dissolvers for sourdough, as well as pre-dough and poolish. Our systems deliver precision and full control of all processes, as well as standardisation and repeatability of procedures. They can stand-alone or be easily integrated in the production process, allowing for bread making

through both direct method and indirect two steps method, according to the needs of the manufacturer.

Modular and suitable for small, medium and big production volumes, our systems allow food manufacturers to produce healthy, natural and aromatic products while saving space, manpower, additives and yeast. The technology fully preserves the characteristics of the raw materials and meets the highest standards of hygienic production.

Automation with PLC control, with a flexible management that allows for both automatic and manual options for all operations.

One trend we are observing during the pandemy is self-production: people have rediscovered the art of making their own bread, pizza and focacce. For manufacturers, it would be interesting to provide mixes of ingredients for customers who want to prepare their own product. Our three in one station is the ideal match for this kind of production.

Overall the trend towards healthy products continues, including bio food with related concerns about cultivation and storage, and nutraceutical/functional foods which add active components to provide added benefits as well as nutritional. There is also high interest towards products perceived as traditional or authentic – products with a simpler taste and fragrance that employ natural ingredients and a less processed recipe. As well as this, a growing number of customers are interested in verifying the sustainability of food they eat, including consumptions of materials and energy. **IB**



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