

Apollo Solutions balances cost efficiency with environmental consciousness

Energy efficiency improved for production processes

The range of services from Italy's Apollo Solutions Srl., a young, innovative company from Pessano con Bornago near Milan, extends from renewable energy generation to the design of complete systems for efficient energy usage throughout entire production processes. Apollo Solutions uses intelligent control technology from Beckhoff in order to optimize the control within a production plant for vacuum-sealed, prepackaged meals.



The Beckhoff CX1010 Embedded PC is used at CS Vacuum for controlling both production and the complex air-conditioning system.

Production plant with cooking pot, fryer and oven

Apollo Solutions' concept is to optimize both the generation of the energy itself as well as the downstream production process with regard to energy consumption. "The aim is to promote production sites that are increasingly independent of the energy costs associated with fossil fuels," explains Marco Brunazzi of Apollo Solutions, and he continues: "Our engineering activities affect the entire chain of production, which lead to economic savings via the use of intelligent automation systems; in turn, these savings can be used to increase the degree of automation."

Everything under control in the production of prepackaged meals

Apollo Solutions' range of solutions extends from turnkey systems to contracts for the optimization of an existing system, as in the case of CS Vacuum Srl., a manufacturer of vacuum-sealed prepackaged meals. CS Vacuum had a modular system for producing pre-cooked food that needed to be equipped with a new control system. The old controller was working inefficiently because the individual production plants did not communicate with each other due to a lack of networking. Following the re-launch by Apollo Solutions, the entire production cycle is now subjected to continuous checking, from dosing, vacuuming and pasteurization all the way through to the storage and dispatch of the goods.

High degree of automation optimizes production quality and reduces demands on staff

Apollo Solutions presented CS Vacuum with an integrated system for power generation, building control, order management and traceability of production. In the case of this application, the special requirement was to create two integrated systems for controlling the complex air-conditioning system and the production. The system was to be automated as far as possible in order to allow qualified personnel to focus more time and effort on recipe preparation.

Production is controlled via the local server. Once the day's program/recipe has been entered (e.g. "spicy chicken"), the specified program is automatically adopted by all plant modules: from the cooking pot, scales, oven, the vacuum device, the packaging and labeling machine and the discharge conveyor. Beckhoff CP6901 Panel PCs, which are used



for production preparation, are equipped with touch screens and communicate wirelessly with an access point.

A CX1010 Embedded PC controls the scales, the cooking pot and the fryer (via Modbus) as well as the oven (via PROFIBUS). Another CX1010 is responsible for archiving the data not only for a possible subsequent inspection by local health authorities, but also to verify production performance and efficiency.

The touch screen panels mounted along the entire production line allow the operators to monitor each production phase and to make corrective interventions.

The second integrated system is used to control the air-conditioning system, which consists of four air treatment units, six fans, two cooling units, water heaters, pumps, overheat switches for the pumps (automatic or manual) and the de-icers for the cold rooms. All consumers in the air-conditioning system are connected to an additional CX1010.

"Based on the Beckhoff automation components, we have been able to implement the solution we developed without changing the basic principles stipulated by the plant designers. We see this as a big advantage alongside the impressive price-to-performance ratio," says the satisfied development engineer Brunazzi. "However, the ease of operation of the system control, which only requires basic knowledge of the Windows environment, also met with a positive response from our customer."