

### Improve food safety and food quality through power control

Food and Beverage Industry

#### Keywords:

- Greenhouse gas emission reduction
- Energy savings
- Food quality
- Professional electric ovens
- Food safety
- Temperature control

### The Food and Beverage industry: Balancing hygiene standards, energy savings, and product quality

The food and beverage industry faces significant challenges in sustainability, efficiency, and compliance with hygiene standards. According to the International Energy Agency, this industry accounts for almost 25% of global energy consumption. The food sector is the third largest energy consumer after the chemical and metallurgy industries. In Europe, the goal of carbon neutrality by 2050 demands major transformations, especially in optimizing industrial processes. Therefore, food companies must find solutions that reduce their carbon footprint and energy consumption while adhering to food hygiene and safety measures.

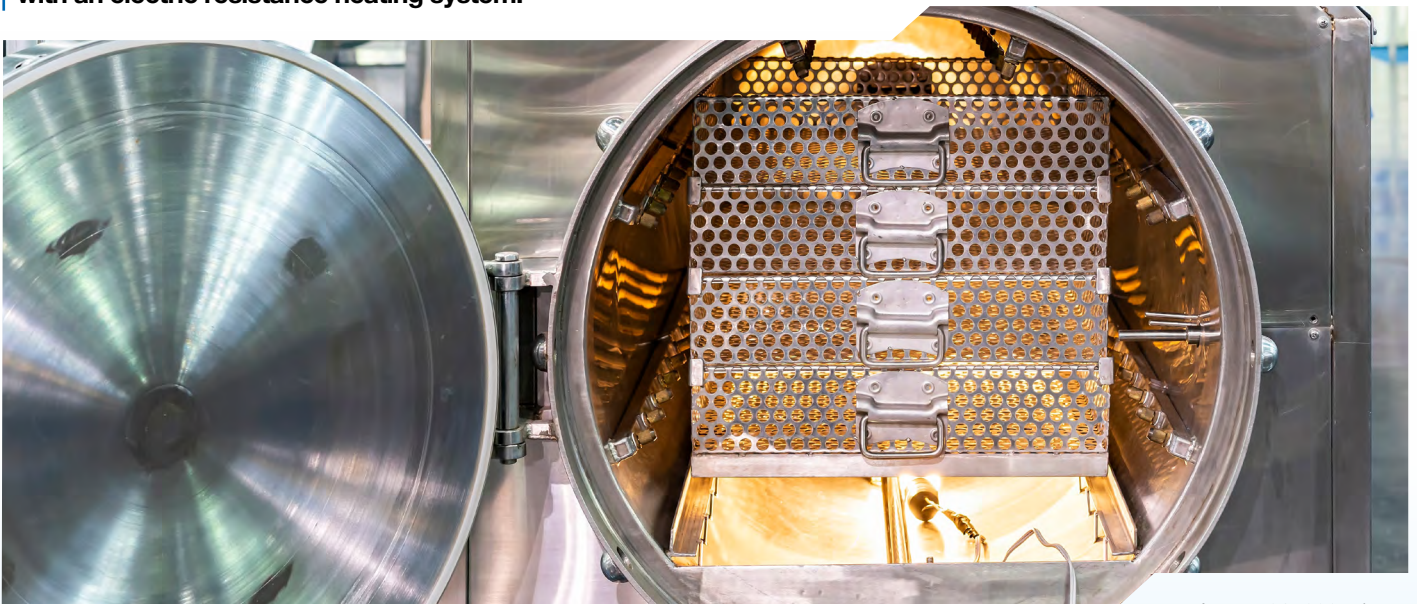
The decarbonization of industrial processes has become a major environmental concern. Additionally, the rise in energy prices across Europe encourages companies in all sectors to monitor their energy consumption closely. This cost increase drives many companies to seek more sustainable, less expensive, and energy-efficient electrical solutions.

Simultaneously, hygiene standards in the food sector are particularly stringent to ensure product quality and consumer safety. In Europe, the «Hygiene Package» includes a set of standards such as the Food Law, which harmonizes hygiene and safety rules across EU member states. Factories must also focus on improving sanitary conditions and reducing contamination risks while ensuring high-quality products.

#### **Electrification of processes offers a solution to the ecological, economic, regulatory, and sanitary challenges faced by the food industry.**

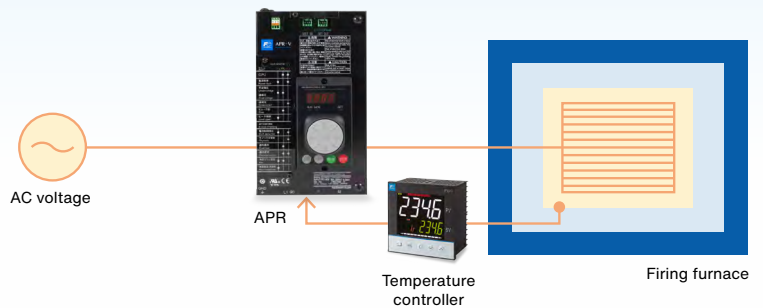
Several industrial processes in the food sector, such as cooking, heating, drying, pasteurization, or sterilization, can be electrified. Electrification addresses the ecological, regulatory, and sanitary challenges associated with food production and replaces fossil energy sources. For instance, using gas in food processing leads to CO<sup>2</sup> emissions, significant energy consumption, and challenges related to product quality and the working environment. Specifically, gas heating increases the ambient temperature in industrial spaces due to radiant heat, impacting the quality of food products and increasing the need for air conditioning, along with the associated costs.

#### **A food processing equipment manufacturer replaced its gas burners with an electric resistance heating system.**



## To meet the numerous challenges of this food industry manufacturer, Fuji Electric implemented an electric resistance heating solution controlled by APR-V and APR-D power controllers.

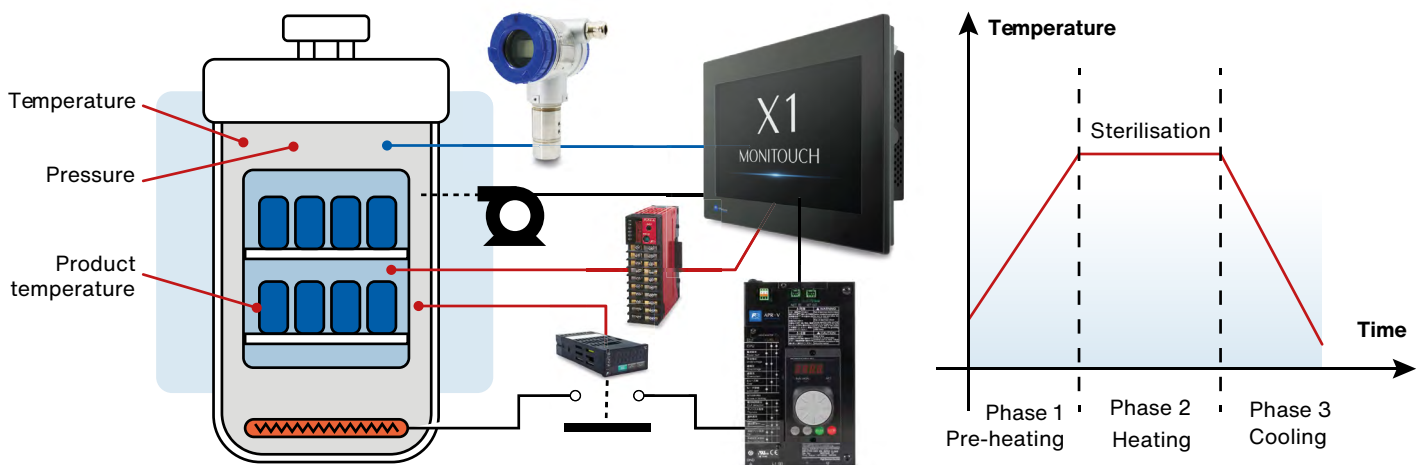
These SCR controllers offer precise control over heating power to ensure optimal temperature control in the electric cooking process. As this electric heating power replaces polluting gas heating, CO<sup>2</sup> and carbon monoxide emissions are eliminated. The elimination of greenhouse gas emissions has significantly reduced the environmental impact of this food manufacturer. Moreover, opting for an electric cooking process reduces thermal radiation and its impact on the working environment. As a result, the use of electric processes limits the need for air conditioning and reduces the associated operational costs.



The features of Fuji Electric power controllers allow for precise temperature control, ensuring consistent quality in food production. Through optimized and continuous control of power supply, they reduce temperature fluctuations and improve the quality of produced food. Additionally, their soft-start functionality ensures the quality of final products by preventing sudden temperature changes. This feature is particularly important in the food industry as it also helps reduce food waste in factories. It is estimated that 21% of food waste in France occurs during food processing stages such as cooking or pasteurization.

### This food processing equipment manufacturer also electrified its autoclaves.

Indeed, the manufacturer decided to switch from a steam sterilisation system to electric autoclaves. This allowed them to better comply with food safety standards and improve hygiene conditions within food production plants. Electric autoclaves equipped with power controllers are more precise in temperature control, ensuring better elimination of pathogenic microorganisms and guaranteeing food safety. Electric autoclaves are also easier to maintain and clean than their steam counterparts, reducing the risk of cross-contamination.



Thanks to its expertise in temperature control, Fuji Electric replaced this food company's gas burners and steam autoclaves with electric processes controlled by power controllers. This allowed the food company to significantly reduce its carbon footprint and improve product quality through better control of its ovens and autoclaves. This shift to electrification marks a decisive step toward more sustainable, efficient, and environmentally friendly production.



## Your benefits:

- + Decrease of CO<sup>2</sup> emissions
- + Reduction in energy consumption
- + Improvement in sanitary and working conditions
- + Enhanced quality of food products



## Power Controllers: APR's

### Power controller APR-V

Advanced versatility for demanding environments:



- High-precision feedback function
- Space and wiring savings
- Compatible with four-wire three-phase circuits
- Easy operation and adjustment with optional setting display
- System built in combination with Fuji Electric temperature controllers

### Power controller APR-D

Compact solution for industrial applications:



- Soft start with gradual power increase and decrease
- Easy operation and adjustment thanks to the included display
- Energy visualization and optional communication functions
- Simple functions for easy use
- System built in combination with Fuji Electric temperature controllers



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