



Company News

ABB's Digital System improves Productivity and Energy Consumption at Cement Plant in Japan

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Zürich, Switzerland -

ABB has delivered the advanced process control solution ABB Ability™ Expert Optimizer system to control, stabilize and optimize industrial processes at the Tokuyama Nanyo cement plant in Japan. The commissioning of ABB Ability™ Expert Optimizer enables Tokuyama to reduce about 3 percent of thermal energy consumption in the kiln as well as maintain operational quality at the Nanyo plant, one of the largest single factories in Japan.

Tokuyama manufactures high-quality cement at the Nanyo plant which has a clinker production capacity of 4.54 million tons per year and supplies customers in Asia and Oceania as well as Japan. The company has invested in an efficient and sustainable factory that manufactures cement, incorporating by-products in the Nanyo plant, as well as raw material waste and fuel substitutes mainly from neighboring areas. All materials are treated in the cement kiln to ensure they are harmless ahead of cement manufacturing.



Kiln at Tokuyama Nanyo Plant where ABB Ability™ Expert Optimizer was deployed. (Picture: ©Tokuyama Corporation)

ABB Ability Expert Optimizer controls and optimizes the calciner, kiln, and cooler processes, and will further stabilize production at the Nanyo plant by properly controlling equipment and function such as induced draft fans, burners, grade speeds, etc. in each process. It is an industrial software based advanced process control solution which enables and automates the best operational decisions accurately and consistently at all times drawing on linear and non-linear model predictive control, fuzzy logic and neural networks. By coordinating the setpoints of the different stages of the process and immediately detecting deviations among the various operation procedures, ABB Ability Expert Optimizer helps plant managers to reach set profitability and sustainability goals within significant payback time and typically provides a return on investment of less than 6 months.

“We selected ABB’s Expert Optimizer to equalize the quality of the operation and improve the operational efficiency,” said Mr. Ryota Kakimoto, Cement Manufacturing Dept., Tokuyama. “As expected, we have significantly reduced the number of the operator manual operations normally spent on manual tasks. Through increased automated operations we can use the time saved for other tasks. We believe that this solution will also support our young operators to learn the know-how of the operation efficiently.”

“Expert Optimizer emulates an operator and provides sharp control with fewer deviations. It is already bringing efficiency and sustainability benefits to production at the Nanyo plant,” said Hiromichi Yoda, Local Division Manager for Japan, Process Industries, ABB. “Although, the timing of the introduction of the system was during COVID-19, we worked remotely between Japan and Switzerland to complete the commissioning, and this was a success with the support of our customer. As part of the ABB Ability™ portfolio of digital applications, Expert Optimizer supports digital transformation and sustainability aims at customer’s plant.”

Since commissioning, production has been maintained and thermal energy consumption in the kiln has reduced by three percent. Expert Optimizer has resulted in a near 70 percent reduction of operator manual operations and has benefits when cleaning the kiln.