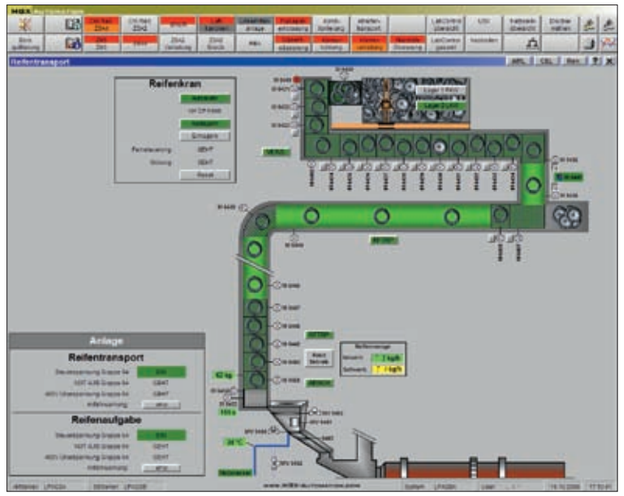
Lafarge Perlmooser upgrades transport system

Cement and environmental protection sounds like an unlikely combination, but it is a perfect partnership at Lafarge Perlmooser, where used tyres are used as an alternative energy source for cement production. Controlled by straton and zenon, the completely renewed tyre transport system supplies the rotary furnace with about 25 % of the fuel required per hour.



Lafarge was founded in France in 1833. Today it employs 71,000 people in 70 countries. Perlmooser Zementwerke has been a 100% subsidiary of the Lafarge group since 1997, operating under the name Lafarge Perlmooser GmbH.

ENERGY FROM TYRES

Cement plants have a great potential for substituting normal fuel with waste materials. Using alternative fuel for cement production saves natural resources and reduces CO2 emissions. Lafarge Perlmooser protects the environment and saves resources in many ways, one of which is by using used tyres as fuel. MGX Automation was been commissioned to renew and upgrade several parts of the plant. The objective was to reduce operating costs and increase production output. An important subproject was renewing the tyre transport system.

Wolfgang Luger, head of the project department in the plant at Retznei: "We replaced about 25 % of the fuel required for our rotary furnace with used tyres. In the autumn of 2007, we decided to completely renew the electrical equipment and automation of the used tyre system. Above all, we wanted to enable our operators to solve transport problems with as little travel as possible. Until now, solving such problems was a labor intensive task as it involved travelling long distances."

A PERFECT TEAM FOR SMART SOLUTIONS: STRATON AND ZENON

On the way to the furnace the used tyres are first picked up by an automatic crane that places them on to a slat conveyor. From there, they are moved through a separating system where they are analyzed and separated by a laser scanner. The scanner system transfers the collected data via Modbus TCP to straton. In the same way, straton sends target values to the system, which then checks tyres for parameters such as maximum diameter or the presence of rims. Tyres matching the requirements are conveyed through a weighing station and then into the rotary furnace. For this the transport system, a total of 30 inverter drives, for the slat conveyors, roller conveyors and conveyor belts, had to be connected to the PLC via Profibus DP. The electro-mechanical design was completely changed and the MCC, Motor Control Cabinets, and the inverters were placed directly by the motors. MGX Automation chose the zenon HMI/SCADA system as the redundant control system. straton was chosen to control the WAGO and Siemens slaves. straton and zenon are very open and allow easy communication with existing automation components via protocols that include Profibus DP, Modbus TCP and IEC 60870-5-104.

straton also interfaces with the WAGO 750/753 field bus nodes and the Siemens ET200S, which has been in use at Lafarge Perlmooser for a long time. This degree of flexibility and openness was a decisive factor in selecting straton.

Another fact that was well received by Lafarge Perlmooser was straton's ability to make online changes, which allows program changes to be imported during operation. Interrupting the operation of process automation systems like the ones at Lafarge Perlmooser would involve problems and costs. With straton and zenon changes can be made without stopping the system. straton's binding feature offers a very convenient way of dividing the overall process into several decentralized areas that stay in contact without any extra cable connections. In this way, parts of the conveying system that are far from each other were integrated into the overall system in a very elegant way. zenon and straton interface with nearly any hardware. Therefore, Lafarge Perlmooser can deploy and change PLCs as required. This allows for the flexible extension of the system and the connection of different projects.

Marting Grübler, CEO of MGX Automation: "We found the astonishing depth of the integration of straton with the zenon control system to be really helpful. They both use a common database and therefore variables are always available in both systems automatically. Additionally, we can use sophisticated communications such as Profibus, Modbus and IEC 60870 for connecting new and existing system components."

ONE STOP SOLUTION

Martin Grübler: "The big challenge for us, besides the short time available for the change, was to consider the optimization requirements of the operators. In March 2008, the system was launched in its new design. We were able to meet the requirements of the operators: They can now solve 90% of all problems directly in the control station without the need to travel long distances."

straton and zenon were also used in the LABCONTROL project. This system automates and visualizes the high level processes of a fully automated laboratory for production analysis and quality management in the cement production. LABCONTROL is the communication hub between the conveying systems and analytical devices of the laboratory on the one side and the existing control system and process data acquisition system on the other. Here straton runs as a soft-PLC, together with zenon, on a PC and uses the flexible communication features of the multi-driver concept for connecting to other systems.

Rober Meixner is responsible for technology and automation in the plant in Retznei: "With its convenient user-interface and its integration with zenon, straton makes work easier for our maintenance employees and allows us to perform program changes and small automation projects on our own."