Increased plant visibility and capacity optimization at CBR and ENCI

Full Control

In order to further increase the visibility and long-term profitability of their processes, the cement manufacturers CBR and ENCI (part of HeidelbergCement) are exploiting the advantages of Totally Integrated Automation (TIA); their cement factories operate largely with the Cemat process control system. With the introduction of a manufacturing execution system (MES) solution based on Simatic IT, CBR and ENCI have created the basis for optimizing the flow of information and system transparency in real time and have achieved uniform vertical integration of process information.

HeidelbergCement is one of the world’s leading manufacturers of cement, concrete, and building materials. With approximately 42,000 employees and more than 1,600 production plants in 50 countries, the corporate group is the world’s fourth-largest and Europe’s third-largest cement producer. In January 2004, the HeidelbergCement companies CBR in Belgium and ENCI in the Netherlands were merged into a new organization by the name of CemBeNe. This merger provided the opportunity not only to streamline the corporate structures but to make large information technology (IT) investments to automate and further optimize the production processes. It soon became clear that a critical step toward increasing production capacity would be to considerably improve system transparency. Therefore CemBeNe looked for a suitable solution for the acquisition and processing of process data, which would allow the company to better assess and optimize the cost-effec- tiveness of its production.

Integrated solution
Most of the CemBeNe plants operate with the Cemat process control system, which is based on Simatic PCS 7 and developed
Simatic IT

Simatic IT is the manufacturing execution system in Totally Integrated Automation. It relies on recognized industry standards and makes production processes transparent by compressing current and historical data in user-specific reports and on-screen views. This offers a number of advantages:

- The production data are available long term and allow informative performance analyses.
- Time-consuming manual reports are replaced by automatic reporting.
- Concrete information enables a lasting increase in productivity.
- More specific process control allows optimum use of capacity.
- Operating costs become transparent and means of reducing costs are revealed.
- All production and environment-relevant data are available at all times.

Implementation in three steps

The first project phase was a pilot installation for the coal mill at the Belgian site in Lixhe, in which the possibilities of long-term data archiving and the advantages of KPI (key performance indicator) calculation were to be demonstrated. In addition, this phase was to allow the company to set up an extensive performance reporting system.

Implementation of Simatic IT at the Belgian sites in Lixhe and Anoing followed in the second phase. In the third phase, the project was transferred to the sites in the Netherlands.

Thanks to Simatic IT and the integration of the management and process levels with TIA, important information such as energy consumption, use of operating equipment, downtime, and production yield is available all the time on demand and is visualized in user-specific reports and views. CemBeNe is therefore able to make direct KPI calculations based on the latest data, and all production processes are transparent.

Specifically for the cement industry. It was therefore expedient to use the capacities of this system and the Siemens expertise behind it to develop a consistent TIA solution with MES functionality – a task for which CemBeNe tapped the experience and industry knowledge of Simatic IT certified partner Technord Automation. After extensive analyses, CemBeNe chose the Simatic IT solution package. Simatic IT offers a high degree of uniformity, which not only significantly reduces the development and implementation time but also enables smooth integration with Simatic PCS 7. Since this is an open environment based on recognized standards, the integration of common management information systems (MIS) and enterprise resource planning (ERP) solutions poses no problems either.

Requirements and solution

The corporate strategy of HeidelbergCement includes optimized production processes and long-term profitability of production – a demand that at CemBeNe was to be met above all by continuous acquisition and archiving of all operating data. All the data on processes, resources, raw materials, and end products were to be entered and placed in relation to the operating data of the furnace. This information was then to flow into an MIS, which would make process performance and cost structures transparent and enable continuous monitoring of the strain on the environment.

The solution implemented by Technord Automation is smoothly integrated into the existing system environment. It connects the company-wide ERP solution at the corporate level with the Cemat automation system at the process level and the linked laboratory information system (LIS). The decisive advantage here is that reports no longer need to be written by hand with great effort and considerable delay, but can now be generated directly from the current database automatically.

Find out more:
www.siemens.com/cement
www.siemens.com/simatic-it
E-mail: cement_industry.simatic-it@siemens.com