

Fan Control Gives Security for Slovenian Cement Production



At Slovenia's premier cement producer, production output has been assured with the installation of a 1 MW fan drive and motor supplied by Control Techniques' reseller, PS Logatec.

The project, carried out by Hidroinženiring d.o.o. of Ljubljana, was to improve the reliability of the massive fan supplying hot air from the output of the cement oven. One critical feature of the control is to avoid the huge, four-metre fan running at its resonant frequency, causing a build-up of vibrations, oscillation and damage to the fan.

Everything about this installation is massive. The fan motor alone weighs more than six tonnes, the main shaft diameter is 140-mm, each of the four cables to the motor comprises three 240-mm diameter wires and the current on the 690 volt system exceeds 1,000 amps! Not surprisingly, the drive chosen for the task is equally substantial – a Unidrive SP modular drive with one master unit and eight slave modules that, together, make up the required total of 1 MW. The master unit is additionally fitted with an SM Profibus DP module to give direct communications to the SCADA control system and an SM Ethernet module for remote monitoring and access.

The motor selected for this onerous duty is a 690V LEROY-SOMER FSA 3-phase asynchronous fan motor, designed for a long service life in extreme operating conditions such as being adjacent to this cement oven.

The drive panel built and installed by PS Logatec, is located in an air-conditioned plant room at the cement works.

Sensors on the fan detect the build-up of vibrations and feed back to the SCADA system. During operation, the system ensures that the fan motor accelerates or decelerates rapidly through the critical frequencies. An additional small motor, separated from the main motor by an electrically operated coupling, is also fitted to the motor shaft to turn the fan slowly when it is not in use to prevent heat damage from the furnace.

Because the Unidrive SP is modular, the customer has complete security of operation, since, even if one module does fail, the drive is capable of running at reduced power.

The Control Techniques Unidrive SPM range provides a versatile and cost-effective solution for high power drive requirements, with simple installation and a choice of operating modes to optimise energy costs – multi-pulse, active input or common DC bus configurations all available. This modular range gives clean power with 12, 18 or 24 pulse configurations, is ideal for dynamic loads with in-built brake controller or full regenerative energy control and can reduce running costs by circulating energy between braking and motoring on a common DC bus.



KEY BENEFITS

- IMPROVED RELIABILITY
- SECURITY OF OPERATION
- DIRECT COMMUNICATION TO THE CONTROL SYSTEM
- REMOTE MONITORING & ACCESS FACILITY
- ENERGY SAVING OPTIONS

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