

PAYBACK IN MONTHS FOR TWO LARGE FAN DRIVES

CUSTOMER PROFILE

At Civil and Marine's Middlesborough plant, blast furnace slag, a waste product from the Corus steelworks next door, is ground into a fine powder called Ground Granulated Blast-furnace Slag (GGBS), used to enhance concrete.

THE CHALLENGE

Excessive wear and tear on dampers prompted Civil and Marine to look at alternative ways of controlling the airflow that extracts the abrasive fine powder from the ball mill and Sepol separator.

"As neither fan operated at full speed, we also saw an opportunity for energy savings", explained Electrical Engineer and Assistant Works Manager Rob Thwaites. "We brought in Control Techniques who calculated likely savings and predicted that the drive for the Sepol separator would have a payback of just seven months, whilst the ball mill would pay for itself in nine. The calculations have proved to be very accurate and we have made precisely the savings that Control Techniques predicted."

THE SOLUTION

Control Techniques recommended 200 kW and 132 kW modular Unidrive SPM drives, retrofitted into existing cubicles, with both drives under speed control from a controlling PLC. Further Unidrive SP AC drives were installed on two 450 kW pre-grinders, with four drives on each working in load-sharing mode. The effect on this new section, that takes a mixture of the coarse pelletised and granulated GGBS, has been an overall increase in throughput from 50 to 70 tonnes of GGBS per hour. This further enhances the energy efficiency of the plant by reducing the energy consumed per tonne of output produced.

THE BENEFITS

Energy consumption of the Sepol separator, driven by a 200 kW motor running at 71% to 75% of full speed, was reduced from 146 kWh to 61 kWh. The roll mill extract has a 160 kW motor. The airflow was restricted to 50%, with an energy usage of 105 kWh, which was reduced to 45kWh - making a total saving across both machines of 145 kWh or £700 a week based on a 100-hour production week.

"A further benefit we hadn't anticipated is the reduction in noise, which makes the plant much more comfortable for operators. We also anticipate that fan motors and bearings will last longer and require less maintenance."

**Rob Thwaites, Electrical Engineer
and Assistant Works Manager**



KEY BENEFITS

- **IMPROVED THROUGHPUT**
- **SIGNIFICANT ENERGY SAVINGS**
- **NOISE REDUCTION**
- **PAYBACK IN MONTHS**

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