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New ABB drives for old pumps give £1 million energy saving for Corus

A million pounds in annual energy savings is expected from an installation of ABB drives at Corus Strip Products in Port Talbot, South Wales.

As part of a plant-wide energy saving programme, 24 ABB industrial drives, ranging from 140 to 400 kW, are being installed to control pumps on the hot strip and cold mills, plus three fans on the coke ovens. The pumps recirculate cooling water in the mills, while the fans are used for dust extraction at the coke ovens. The cost of the drives about £1 million; the whole project including pumps, cabling etc. is around £2.5 million.

The project started in July 2006, when Guy Simms, leader of the energy optimisation team at the Port Talbot site, started looking into the possible energy savings. The order for the drives was placed in December and installation commenced during the second quarter of this year.

“The pump and fan motors were clearly oversized and running longer hours than necessary,” he says. “Much of the equipment on the site was installed during the sixties, seventies and early eighties. At the time, it was common practice to oversize the equipment by as much as 50%, to make sure it was sufficiently robust. In many ways this was a successful policy – after all, it has lasted all these years. But with the ABB drives we are now installing, we can fine-tune the applications to a degree that just wasn’t possible in those days.”

The applications have varying demand but until now, the pumps and fans have been running continuously at full speed. Running to demand will not only reduce energy costs but also save water and improve control, particularly of the cold mill, which could potentially result in better product quality. Low voltage drives are used as they have a smaller footprint compared to medium voltage drives. A transformer reduces the voltage from the 3.3 kV network on the site to the 690 V used by the drives.

ABB was the preferred choice by the engineers, as there is already a large amount of ABB equipment on the site. The engineers were happy with the performance of the existing equipment and standardising on equipment from one manufacturer reduces training needs and makes maintenance easier.

The Corus site at Port Talbot in Wales is one of the biggest steelmaking plants in the UK with an annual output of 5 million tonnes. Energy is Corus’ second highest cost after raw materials. The costs and revenues of the business are fairly fixed, so high productivity is crucial to stay competitive.

“Using drives to improve energy performance is not just a matter of payback, it is also a modification with low risk,” Simms says. “We can’t afford production stoppages. If a drive solution doesn’t work out, the worst that can happen is that we have to turn up the speed to 100% again. An alternative approach could be to install a new and smaller pump, but then we would also need new pipes and a new bedplate. Once built, we would be stuck with this solution.

“We prefer to just add drives to existing applications that have proven their reliability over the years.”

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Caption: 24 ABB drives, controlling pumps on the hot strip and cold mills, plus fans on the coke ovens, will be saving a million pounds in energy annually at Corus Strip Products in Port Talbot, South Wales.

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