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ABB drives save £11,000 a week for Corus

An ABB low voltage AC drive is saving steel-maker Corus £11,000 per week in energy costs on dust extraction at its Port Talbot works in South Wales.

Corus is pursuing energy saving schemes and had identified Fume Extraction Number 3 as a suitable target. The application removes dust from the Basic Oxygen Steelmaking (BOS) process at the plant. The previous system employed an 11kV direct-on-line starter for the 1.8 MW motor driving the fan, linked by a fluid coupling. Although this gave some variable speed control of the fan, there was no opportunity to vary the speed of the motor and so save energy.

Corus asked Industrial Automation and Control Ltd. (IAC) to provide a turnkey solution. The companies worked together to develop the scheme and ensure a successful outcome. IAC supplied a 1.8MW, 690 V, ABB industrial drive to replace the direct-on-line starter, together with an 11kV/ 690V ABB transformer.

The PLC of Fume Extraction Fan 3 communicates with the Iron Desulphurisation and Fume Hood PLCs over Ethernet. Depending on production requirements, the fan is run at a look up setpoint, with minimum speed being when the plant is completely idle and maximum speed when all units are in use.

The fan can also be operated in a differential pressure mode, where the speed of the fan is adjusted by a PID control to maintain a set pressure across the bag filters, or by using manual setpoint modes.

Andrew Bunce, Sales Manager for IAC, says: "When the BOS plant is in full scale use it produces a lot of dust, so the fan is run at full speed by the ABB drive. When the BOS plant is not in use, the fan can be turned down to 30% of its full speed, saving Corus £11,000 per week on its electricity bill."

The payback time is predicted to be 1.2 years, with the fan running at 30% full speed for 50% of the time.

IAC modified a HV breaker to suit the ABB transformer, designed and built a cubicle for the ABB drive and an enclosure for the transformer.

"We have recently won the contract to modify the control of fan 3a," says Bunce, "and we will be using the same ABB hardware."

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For more information please contact:

Layla Hewitt

Marketing Communications

Phone: 01925 741517

Email: layla.hewitt@gb.abb.com

ABB Ltd.

Daresbury Park

Daresbury

Warrington WA4 4BT

Emma Jenkinson

Armitage Communications

Phone 020 8667 2218

Email: emma.jenkinson@armitage-comms.co.uk