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Galvanising company to save £10,000 on energy with ABB drive

A galvanising company in Kent is set to save over £10,000 a year in electrical energy costs while also cutting CO₂ by 60 tonnes a year following the installation of an ABB standard drive on its fume extraction system.

Medway Galvanising Company Ltd, based in Sittingbourne provides galvanising, powder coating, striping and shot blasting services for all types of architectural and structural steel for customers in the South East of England. As part of its galvanising service, it processes up to 12,000 metric tonnes of steel a year, based on 24 hour production from Sunday to Saturday.

Galvanising is carried out in the company's zinc dipping bath, which contains 145 metric tonnes of molten zinc at 450 degrees centigrade. An extraction system over the zinc dipping bath is used to extract the harmful fumes given off in the process. The fan on this extraction system was initially run at full speed for 24 hours a day, even when not needed.

The new installation involves an ABB standard drive and a high efficiency 37 kW ABB motor. For most of the time, the ABB motor runs at half speed, or 25 Hz. A limit switch detects when the crane carrying the components to be dipped is over the zinc bath, signalling the drive to ramp up the motor to full speed to achieve the maximum extraction rate. This maximum speed is required for between 10 and 20 minutes, depending on the weight of the component being dipped.

Steve Lovelock is Engineering Manager for the plant: "We have always been keen to save as much energy as we can throughout the plant, and so in 2005 we started an energy saving project that resulted in us receiving climate change levy discounts. We identified the extraction fan motor as the largest energy user in the plant, and we wanted a solution that would improve its energy efficiency."

Lovelock approached Mid Kent Electrical (MKE), an ABB Drives Alliance member, for help in achieving the right solution. "We have worked with MKE for some time," says Lovelock. "Not only are they local to us, but they provide a fast, quality service, rewinding our motors and carrying out all our pump maintenance with the fast turnarounds we need."

MKE installed an energy monitor on the application over a complete production week to determine its exact energy use. This showed that the motor would use just over 215 MWhr a year, at a total cost of around £20,000.

Following this, an ABB variable-speed drive was fitted and the monitoring repeated. This showed that with the variable-speed drive in place, Medway Galvanising would achieve a reduction of just over 105 MWhr a year at a cost of around £9,800. This is an annual reduction in running costs of £10,200 and a cut in CO₂ production of some 60 tonnes a year.

Says Lovelock: "We estimated we could achieve a saving of around £8,500 so the actual savings we are making are even better and we are still getting the effective fume clearance we need. The fact that the motor is not working constantly flat out will also extend its life. We are currently conducting a motor management survey of other large energy using applications on the site so there could well be other uses for variable-speed drives in the plant."

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Caption: Medway Galvanising is set to save over £10,000 a year on energy costs following the installation of an ABB standard drive.

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