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Aerospace manufacturer cuts £12,000 from energy costs with ABB drive

ABB variable speed drives, designed into hydraulic systems, are saving Trelleborg Sealing Solutions over £12,000 a year on energy costs.

At its Burton-on-Trent plant the company manufactures solutions and products that seal, protect and dampen vibrations in a wide range of industries, including sealing products for both civil and military aircraft.

As part of the Trelleborg Group Energy Excellence Initiative, staff at the plant expressed concern about the energy use of its hydraulic power packs, which supply hydraulic fluid to a number of presses used to bond fabric to rubber.

The hydraulic pressure in the system is maintained by a motor where if the presses had no demand for hydraulic power, the motors would simply continue to build the hydraulic pressure. At a certain point, known as the unload value; the pressure would need to be relieved. The motors would be switched to recirculating the hydraulic fluid in the system resulting energy wastage as the motors were doing no useful work in this phase.

Andy Lamb, Process, facilities & safety manager at the plant, contacted ABB Drives Alliance member Inverter Drives Systems (IDS) to investigate and prove how variable speed drives could improve the system's energy use: "We had been challenged to save 10 percent on our energy costs and felt that variable speed drives could help us achieve this," says Andy Lamb.

IDS performed an energy appraisal on the power pack installation, which uses four 18.5 kW motors. The motors run for 126 hours per week and 51 weeks per annum. Monitoring over a week gave a calculated energy consumption of 15.8 kW, using a power factor of 0.75. Based on a figure of 9p per kWh, this equates to an annual consumption of £9,137 per motor, or £36,551 for all four motors.

To improve these costs, IDS installed four 18.5 kW ABB standard drives to automatically maintain the system pressure just below the system unload value, using a pressure transducer to feed back to the drive's internal PID control. Energy savings achieved on this application are £2,742 per motor, or £10,960 for the four motors, with a payback time of 11 months.

A further power pack had an average power consumption was 7.1 kW. With half of its time spent unloading and half loading, the machine cost £4,100 per year in electricity.

The energy use was also monitored over a week, during which time average energy consumption was recorded as 4.8 kW, a saving of 2.3 kW or 30 percent. This gave an annual cost saving of £1,230 with a payback time of 18 months.

This gives a total energy saving for both applications of over £12,000 a year.

Says Andy Lamb: "We are very happy with the application and the energy saving that we are achieving."

ABB (ABBN: SIX Swiss Ex) is a pioneering technology leader in power grids, electrification products, industrial automation and robotics and motion, serving customers in utilities, industry and transport & infrastructure globally. Continuing a history of innovation spanning more than 130 years, ABB today is writing the future of industrial digitalization with two clear value propositions: bringing electricity from any power plant to any plug and automating industries from natural resources to finished products. As title partner in ABB Formula E, the fully electric international FIA motorsport class, ABB is pushing the boundaries of e-mobility to contribute to a sustainable future. ABB operates in more than 100 countries with about 147,000 employees. www.abb.com

Caption: An ABB variable speed drive, designed into a hydraulic system , is saving Trelleborg Sealing Solutions over £12,000 a year on energy costs.

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