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Packaging manufacturer to save £60,000 on energy bill with ABB drives

A manufacturer of cardboard packaging for the food and beverage industry is set to save £60,000 on energy costs following the installation of ABB variable speed drives (VSDs) on its shredder fans.

At its plant in Bristol, Smurfit Kappa produces cardboard materials such as shelf ready packaging, trays and bottle carriers, designed to transport and display supermarket products such as beer bottles and tubs of butter. The products are stamped out of cardboard sheets and then printed. During this production process, the plant machinery creates thin strips of waste cardboard that are shredded into smaller particles by fans and then blown into the baler for packing and disposal.

Smurfit Kappa Yate met with APDS the ABB authorised value provider, to visit site to discuss the possibilities of energy saving on fan and pump applications, primarily to look at the processes at site with a view to improving their energy efficiency. Alan Jones of APDS says: "We proposed using VSDs to run the motor driven fans more slowly and thus cut down on energy use. The company was aware of the energy saving potential however they were concerned that the fans could not be run slower as they chop the waste as they blow it and running them slower would cause the fans to clog. We were confident that we could control the process so that it would both save energy and continue with its normal operation."

Julian Jones, Engineering Manager for Smurfit Kappa, says: "We were sceptical at first so it was agreed that APDS would do for a trial using the ABB drives."

APDS measured the power consumption of the 45 kW shredder fans and discovered they cost over £47,000 per annum to run. They then installed an ABB drive, ACS550, on one of the fans and showed that if all three fans were fitted with VSDs, the plant could save nearly £22,000 in energy costs on these fans alone.

"We began with running the motor at 50 Hz and reduced it to 35 Hz before anyone noticed, achieving an energy saving of some 50 percent". Jones adds: "The company was concerned about potential clogging, so we demonstrated how the motor could be driven at full speed for two minutes on start up to clear the accumulated debris. It could then be ramped down to 35 Hz for its normal energy saving operation."

The drive was wall mounted next to the fans in an IP54 enclosure to resist the ingress of dust. Following the initial demonstration, the two remaining shredder fans on the machine were also fitted with ABB VSDs. A further four fans are in the process of being fitted and the company intends to install drives on the various other fans used on its machines. Altogether, the company is set to save over £60,000 in annual energy costs by installing drives on all its fans, together with over 776,000 kWhr of energy and 408 tonnes of CO₂.

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Caption: Smurfit Kappa is set to save £60,000 on energy costs following the installation of ABB variable speed drives on its shredder fans.

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