

Case Study



Jaguar Inverter Drive *Grinding Mixer Solution*



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Grinding Mixer Solution

IMO

Application: Mixing vessels equipped with a vertically mounted 250kW / 400V / 4 Pole motor which drives the grinding paddles through reduction gearboxes

Equipment: Jaguar VXM AC Variable Speed Drive

IMO is enabling a manufacturer of paper bleaching agents to fight back against rapidly rising energy costs. The manufacturer, Tielle S.R.L. is benefiting from savings of €1000 per day in production costs following the installation of 8 – 280kW IMO Jaguar drives to grinding mixers at its plant in North West Italy.

“This application ably demonstrates the potential for energy saving with AC drives, outside of the normal areas such as pumps, fans and compressors,” said Rob Robbins, IMO Product Manager for Drives. “The rapid rise in the price of oil is hurting manufacturers all across Europe; but with applications like this we are opening up possibilities for reducing energy costs across a wider area of a company’s operations.”

The Tielle application was piloted by Claudio Bozza, at IMO’s Italian office. He visited the company following attempts by Tielle personnel to use mechanical means to reduce some of the huge energy costs associated with the mixing application. These involved modifying the diameter and shape of the paddles in the eight large mixing vessels, which are used sequentially in the manufacture of the bleaching agent. However, the quality of the finished product could not be guaranteed using this method, and so another solution was sought.

Each of the mixing vessels is equipped with a vertically mounted 250kW/400v/4-pole motor, which drives the grinding paddles through reduction gearboxes. IMO’s proposal was to equip these motors with energy-saving IMO Jaguar drives. Working closely with IMO, a local system builder Delta-I installed the 8- IMO Jaguar VXM280K Variable Frequency Drives in a substation, adjacent to the mixing hall. This involved leaving the original motor cables in place, but diverting them from the existing starter panels into the inverter modules. In addition, local and remote controls were installed for stop, start, frequency control and monitoring. Finally, each inverter was fitted with a suitable DC reactor to limit the harmonic distortion in the factory power supply.

Once installation was complete, each inverter was tuned to its respective motor and commissioned by IMO engineers. The result is that the original mixer configuration has been reinstated, but, crucially, operating at a reduced inverter/motor frequency of approximately 42Hz. This reduction in running speed and motor current is not causing any quality issues, but is saving Tielle in the order of €1000 per day in production costs.

Notes on Energy Saving:

Climate change can be defined as: A regional change in temperature and weather patterns. Current scientific evidence indicates a noticeable link between climate change over the last century and the increased burning of fossil fuels.

What is being done and is your business already being effected?

Climate Change is recognised as a global problem and nations are working across the world to reduce their greenhouse gas emissions by 5.2% by 2012. The UK’s target is 34% (1990 emission levels) by 2020 and will increase to 42% if international agreement is secured. The UK is affected by the Climate Change Levy. This came into effect on 1st April 2001 and applies to energy used in the non-domestic sector (industry, commerce and the publicsector).



IMO Precision Controls

Unit 15, 1000 North Circular Road, London, NW2 7JP
Tel: +44 (0)20 8452 6444 Fax: +44 (0)20 8450 2274
Email: Sales@imopc.com Web: www.imopc.com

