
WARRINGTON, UK, JULY 10, 2001

ABB drives bring new life to old cranes

ABB drives have helped an aluminium producer prolong the life of its cranes by up to 10 years. Anglesey Aluminium, based at Holyhead on Anglesey, Wales, uses 4, 30 tonne cranes to load its smelting pots with alumina.

The nature of the aluminium smelting process means the company cannot stop production, so the cranes are in constant use and have not had a major overhaul since they were installed in 1970. It was becoming difficult to get spare parts for the control system and the heat from the smelting pots had also caused the power cables to become brittle.

Anglesey Aluminium's Electrical Engineer, Des Frost, says: "We clearly needed to do something to improve the condition of the cranes and make them easier to operate and maintain. We examined the cranes and found that they were mechanically sound – all that was needed was to refurbish the electrics. As we already had variable speed on the cranes, achieved using thyristors, we decided to go for a variable speed drives system.

We had used ABB drives on a conveyor application and to move our unloading machines at our jetty. These drives had given good performance and this decided us in favour of ABB. The drives themselves are easy to use and the programme is accessible to make changes to the starting speed and acceleration."

The ABB ACS 600 Crane Drive was chosen for the application. The drive is designed for crane operations of all types and includes a software macro dedicated to crane control. Frost decided to source the drives through Central Electrical, because of their alliance agreement with ABB, which provides quick response when needed.

Installation and commissioning of the drives was critical. Because of the nature of the aluminium smelting process, the cranes could only be worked on for 12 hours at a time. At the end of this time, the crane had to be back in full working order to continue keeping the pots supplied with alumina.

The main contract was awarded to Professional Lifting Services (PLS) of Sheffield who made up the panels and did as much preparation work as possible before the installation, in order to cut down on the crane downtime.

ABB along with PLS and Frost pre-commissioned the drives before they were installed.

Frost continues: "ABB and Central Electrical staff were on site during the most critical phase of removing the old panels and installing the new drive panels. This had to go smoothly as the crane had to be in working order again at the end of the planned 12 hours downtime stage."

The cranes environment also causes difficulties. The smelting pots sit on an unearthed platform, with large open DC busbars carrying 165 kA. This produces massive magnetic fields that magnetise tools and equipment, prevents the operation of electric drills, and interferes with welding. The drives themselves did not need shielding against the magnetic fields, as they are situated on the cranes 10 metres above the busbars, but heat is a problem. The drives need to operate in a summer ambient temperature of up to 48 degrees centigrade and were oversized to account for this. Frost also specified a temperature monitoring system for the drives, which switches on an air conditioning unit to feed the panels when the temperature becomes critical. The drive panels are to IP 54 to protect the drives against the ingress of dust.

“Overall I am very pleased with the way the project has gone, and with how ABB, Central Electrical and PLS have worked with us to complete this job,” says Frost. “We have refurbished two cranes so far, and will do another two soon.”

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: ABB drives have helped aluminium producer's, Angelsey Aluminium, prolong the life of their cranes by up to 10 years.

—
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