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DC drives give maximum reliability for Corus skip winch

ABB DC drives are playing a critical role in bringing high reliability to a new skip winch, used within the rebuilt blast furnace No. 5 at Corus' Port Talbot steel works in South Wales.

The skip winch replaces an earlier one that was destroyed when the previous blast furnace was damaged, resulting in the re-build. Corus asked Industrial Automation and Control Ltd (IAC) to provide a control solution for the skip winch, which transports raw material to the blast furnace using a series of buckets.

IAC chose an ABB Advant AC450 Dual Processor PLC along with a dual redundant S800 I/O to operate the skip winch, which is driven by two 820kW ABB DC drives. DC drives were chosen because of their ability to withstand the harsh overloads experienced in the steel industry. In the Corus application, common overloads can be 250% of full load, with 285% experienced infrequently.

The electrical control equipment was contained in a panel designed by IAC, allowing the ABB drives to fit back to back and save space.

The two ABB DC drives were configured to execute three operating modes. These allowed single drive-single motor; dual drive-dual motor; and single drive-dual motor operation. Selection of the mode is made manually via the AC450 controller. The DC drives communicate to the PLC using the ABB Advant Fieldbus 100 network. Engineering Stations are connected to the PLC and drives for configuration and monitoring of both systems.

Andrew Bunce, Sales Manager for IAC, says: "There is a lot of redundancy in the system, with crossovers between the transformers. This means that if one transformer goes down, we can still operate the winch by using one of the other driving modes available. This makes it one of the most reliable skip winches installed at Corus' steelworks and allows maximum efficiency and increased productivity."

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