

Steel Vessel Tilt Drives TATA Steel, Scunthorpe



D.C Drive Retrofit on Vessel Tilt Drives.

TATA is Europe's second largest steel producer with annual revenues of over £11 billion and a crude steel production of about 20 million tonnes.

TATA Engineers operating in the BOS Plant at the Steel Works in Scunthorpe approached Drives and Automation to investigate a longstanding problem on the Vessel Tilt D C drive control system on the plant.

The existing drive system was providing very unreliable and downtime was unacceptable.

Following an initial site visit and discussions with the client it was decided that the most cost effective solution was to replace the existing D.C converters and motor field controllers.

Each vessel is tilted using two DC Drive motors each driven independently via a DC Drive system.

The existing NEI power stacks were replaced by Control Techniques M1200R Mentor II D.C drives and FXM5 field controllers. Each converter was rated to cover the peak overload requirement of 2100A.

Each drive was fitted with an MD29 second processor card and on board software was written to provide brake control and system protection trips such as stall, reverse run and run away. The operational logic was integrated into an existing Square D PLC control system.

Drives and Automation supplied all aspects of the retro fit including:

- Initial site survey
- Designs to integrate into the existing system inc software and load sharing
- Removal of existing equipment and full installation of new drives over a three day shut down period
- Commissioning
- 24hr production cover

Three systems were provided over separate shutdowns.

Technical Details

- 2 x M1200R Mentor II Control Techniques D.C Converters
- 2 x FXM5 Control Techniques Field Controllers
- 2 x MD29 Control Techniques Second Processor Cards
- SYPT Drive Programming Toolkit
- 2 x Existing 355kW D.C Motors
- Existing Square D PLC

Mentor II

The Mentor II provided a wide power range of fully programmable DC drives with a unified control interface.

Simple stand alone applications are quickly configured with a minimum of parameters. Add the application module (MD29) to implement high performance drive systems with local intelligence. This intelligence can then be utilised to eliminate the master PLC by constructing a distributed a control system, using the CTNet fieldbus with the System Programming Tool (SYPT). When integration with a master PLC system is required, a range of fieldbus adapters is available.



Problem Solved

- Unreliable
- Obsolete drive system
- Expensive lost production
- Downtime

Solution

- Control Techniques Mentor II D.C Drives
- Field Controllers
- Second Processor applications cards
- Documentation

Benefits

- Increased production
- Improved reliability
- Maintainable solution
- Local support

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