

CONTROL 
TECHNIQUES

DRIVES CONTINUOUS SLAB CASTER

CORUS STEELWORKS | STEEL

DRIVE OBSESSED

NEW OPERATION DESIGNED TO INCREASE BY 25%

Control Techniques drives feature on the continuous lab caster at Corus steelworks in Port Talbot, South Wales, controlling critical operations at the head of the line. The total output of the plant, up to 3.5 million tonnes a year, is dependent on drives from Control Techniques.

Overview

- Extremely reliable
- Easy to use and configure
- Increased speed & reduced turnaround times

The Challenge

Continuous Caster 3 (CC3) was a completely new operation, designed to increase plant output 25%.

Previous contracts for Control Techniques had been upgrades, re-utilising existing DC drives. On this project, the team considered the potential benefits of reduced motor maintenance and the reduced downtime from a switch to AC.

The Solution

Two new AC Drive Motor Control Centres (Form 4 MCCs), employing 60 AC Unidrive SP variable speed drives and Leroy Somer AC motors were supplied.

New AC motors were also supplied by Control Techniques fitted with digital encoders and brakes on the vertical part of the caster. The drive control included on-board intelligence/specific application software, part of which included closed loop to open loop changeover in the event of a feedback device failure, thus ensuring the Caster continues to run.

The Benefit

Key to the success was the PID-based load sharing system, pre-programmed into each Unidrive SP drive, using the on-board facility of the plug-in application modules.

The software's success, with reduced wear and tear and more consistent casting speed, is evident in the motor current trends. Rethread times are also much faster, with any limitations being factors other than the drives/electrics on the strands, the end result is a much more stable and reliable drive control system and superior speed control, leading to greater productivity and improved product quality.

"The whole system is more modular. The intelligence in the system is distributed rather than central, and this means that just one Unidrive SP Inverter is designated as the master and communicates with the plant PLC. This Master then communicates via CT-Net with all the other strand drives, keeping them digitally synchronised. For reasons of dual redundancy, "Automatic Seamless Master Transfer"- passes Master control to the next drive in line, in the event of failure. This means that, if necessary, the line could be run manually."

Roger Morgan | Corus Concast Engineer

