

Control Techniques drives continuous casters at Corus



Control Techniques drives feature on the latest continuous slab caster at Corus steelworks in Port Talbot, South Wales, controlling critical operations at the head of the line. The total output of the plant, anticipated to be 4.7 million tonnes in 2006, is dependent on drives from Control Techniques.

Continuous Caster 3 (CC3) a completely new operation, aimed to increase the output of the plant by 25% and the project team had the flexibility to choose either the AC or DC route. Previous major contracts for Control Techniques had been upgrades, re-utilising existing DC drives, so the drive of choice was Mentor II. Now, looking to the potential benefits of reduced motor maintenance from a switch to AC, and the reduced downtime that this implies, the project team grasped the opportunity for increased efficiency. Again stating a preference for Control Techniques on the CC3 project, Corus elected for the Unidrive SP.

“This is our first real experience with Control Techniques’ Unidrive SP AC drives,” says Corus Concast Engineer, Roger Morgan. “We’ve found them to be very reliable, easy to use and easy to configure. The whole approach to this project has been a move forward in technology, with no analogue to digital interfaces – it’s all digital – with greatly reduced wiring; in most instances just two wires instead of hundreds.”

A proposition was based on the latest AC drive and motor technology from Emerson Industrial Automation companies Control Techniques and Leroy Somer. All the motors ensured totally enclosed protection for improved reliability and less downtime. The scope incorporated two new AC Drive Motor Control Centres (Form 4 MCCs), employing some 60 off AC Unidrive SP variable speed drives and Leroy Somer AC motors. The drives provided a much improved load sharing, a more consistent casting speed, shorter rethread times, and a big boost in reliability. All these features (essential for reliability

and superior speed control), were a pre-requisite for greater productivity and finished steel quality.

Key to the successful operation of the plant 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 success of this software, with its benefits of reduced wear and tear and more consistent casting speed, is very 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 being a much more stable drive control system, which is reflected in improved product quality.

New AC motors were also supplied by Control Techniques, each 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 whole system is more modular,” explains Roger Morgan. “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 in turn 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. It’s now much more flexible and reflects many of the lessons we have learnt over many years of steel-making. The evidence of its success is reflected in the 30% increase in strand speed and the reduced turn-around times.”

“We are very pleased with the results of this major project,” continues Roger Morgan. “The after sales support we receive from Control Techniques has been excellent and indeed our long standing experience of good support over several major schemes was a factor in Control Techniques being chosen for this project.”



KEY BENEFITS

- 30% INCREASE IN STRAND SPEED
- IMPROVED LOAD SHARING
- SHORTER RETHREAD TIMES
- ENHANCED RELIABILITY
- SUPERIOR PRODUCT QUALITY

For the full press release please visit www.controltechniques.com

