

Case study

Cycloconverter control upgrade

Project Summary

Project: Cycloconverter control upgrade

Application: Automation and control system design and installation

Nidec's Role

Nidec Industrial Solutions was selected to install a new automation and control system to a U.S. steel mill's obsolete cycloconverter.

Scope of Supply

- 2 ARTICS Control System cabinets
- 1 cold backup system
- Automation PLC porting activities
- System and installation engineering
- Erection and commissioning
- Project documentation and training



The challenge:

To modernize and extend the life of a U.S. steel mill's aging cycloconverter

The U.S. subsidiary of a Swedish steel company was seeking to upgrade the control systems for two cycloconverters that had been originally installed in an Alabama steel mill in 2001. The now-obsolete cycloconverters – both Nidec SILCOVERT C drives – powered the Nidec synchronous motors that drive the main stand at the steel mill.

To limit costs and production downtime, the steel company wanted to install and commission the new automation and control system with the motors left in place during a planned outage. It also desired the new system to be installed without dismantling the old one, enabling users to switch back and forth between control systems, if needed.

The company selected Nidec Industrial Solutions to perform the turnkey assignment.

The solution:**ARTICS automation and control systems**

Cycloconverters such as Nidec's SILCOVERT C drives are typically used where high-power, relatively low variable frequency three-phase currents are needed to operate variable speed motors. While the 15-plus-year old cycloconverters at this steel mill still had significant life remaining, Nidec extended their life and improved their reliability with a state-of-the-art ARTICS control system.

To enable the mill to use either the old or new controls and motor exciters, Nidec installed a cold backup system that could switch power and signal cables from one system to the other in under 15 minutes.

Nidec's other services included system and installation engineering, system erection, commissioning the Automation PLC Porting and training staff on the system's operation. The completed system today provides stable and reliable performance, while working near the maximum admissible torque – more than 225% of the motor's rated torque – required by the mill's main stand.