

Case study

Steel mill relocation and automation

Project Summary

Project: Tandem and skin-pass mill relocation

Application: Electronic and control system refurbishment and automation

Nidec's Role

Nidec Industrial Solutions was selected to refurbish and automate a tandem mill and skin-pass mill that were relocated from the United States to Italy.

Scope of Supply

- New ARTICS Level 1 with complete technological controls
- Complete basic automation SW on PLC for systems management, interlocks and sequences
- New ARTICS Level 2 with auto-adaptive mathematical model
- Refurbishment of motors and drives



The challenge:

Relocate a mill to expand production and capabilities on a tight five-month timetable

As part of a steel mill expansion, one of Italy's largest and most technologically advanced steel producers chose to relocate a complete tandem mill and skin-pass mill from the United States to an existing facility in Italy.

The company, known for its advanced metal products for the automotive and renewable energy industries wanted to give this project to someone with experience. The company selected Nidec due to their confidence in Nidec from previous projects and Nidec's deep experience implementing more than 150 cold rolling mills throughout the world.

The solution:**Refurbishment and automation in just five months**

The first step involved disassembling the 20-year-old tandem and skin-pass mills in Baltimore, Maryland in the United States and then shipping them to Italy for reassembly. As project manager Nidec supervised most of this process.

The motors and drives in these mills still had many years of life left in them but needed to be refurbished and integrated into the plant in Italy. To minimize installation time and limit downtime Nidec refurbished the main motors for both mills at the company's factory in Monfalcone while restoring the drives at the new mill site.

The new Level 1 automation systems installed by Nidec improved the technological controls (HGC, AGC, ATC, tracking and speed master functions), while the basic automation software on the programmable logic controllers was adapted to the new configuration of the plants for systems management, interlocks and sequencing. Nidec installed its proprietary ARTICS (Automation and Real Time Integrated Control System) Level 1 and Level 2 system control which uses "smart" auto-adaptive mathematical models for process setup to guarantee top quality performance.

Within four months of arriving in Trieste port, all the electrical equipment had been mounted, connected and recommissioned. The tandem mill began production one month later. The skin-pass mill, was also installed and commissioned. The finished project enables the steel mill to expand its production capabilities and product applications.