

Application/Problem:

The Customer's existing Electric Arc Furnace ("EAF") Carbon Injection equipment was not metered but relied solely on variable slide gate positions and pressure settings. Differences in temperature, humidity, carbon density, etc. caused great variability in actual feed delivery to the furnace.

New process equipment was ordered from a third party that included weighing and metering capability but not the controls for the equipment.

Project Solution/Customer Benefit:

Flanders Electric – Engineering Division was selected to automate the new Carbon Injection process. Flanders provided a solution per the process equipment supplier's requirements that also integrated with Customer's mixed control platform (Siemens S5 and Rockwell ControlLogix). Engineering Services provided by Flanders Electric included:

- System Requirements Specification Document.
- Complete Drawing Packages for Control Panel Fabrication.
- Control Panel with PowerFlex AC Drives, Flex I/O and HMI Display.
- PLC (ControlLogix, S5) and HMI (Wonderware) Programming.
- Engineering Work Release Package.
- Start-up and Commissioning Services.

Upon completion of commissioning, the new system improved the system capabilities, reduced downtime, and increased efficiency. Actual injected weights, pressures, flow rates, etc. were recorded and delivered to the plant Level 2 system for tracking with the "Heat". Based on weights delivered in previous feed cycles, self tuning of the drive speed was implemented to feed at the specified rates selected by the Operators. Diagnostics reported equipment problems. Trending of the process variables provided additional diagnostic tools for Operators, Maintenance and Engineering personnel.

