

Aluminum Manufacturer Productivity Increase

Process improvements and controls upgrades improve reliability and profitability at one of the industry's largest North American facilities

Results

Improved profitability

- Estimated profit increase of nearly \$1.5 million annually
- Customer payback on \$750K investment in six months

Upgraded controls and improved diagnostics

- Upgraded DC power bridges to digital drive control
- Upgraded analog control to digital controller platform
- Reduced the electrical maintenance
- Improved operator set-up and line diagnostics

Increased tension level line productivity

- Increased line speed by 50%
- Increased electrical reliability
- Decreased scrap from off-flat material
- Reduced material requirements by 129 feet per coil

Greater Productivity with Lower Material Cost

The original need to increase tension level line productivity results in wide-ranging process improvements for higher profitability

A leading manufacturer of common-alloy aluminum sheet from recycled metal, with advanced technology mills operating across the U.S., provides a variety of alloys and products for diverse industries—including metal distribution, transportation, building and construction, and consumer durables. As an industry leader in manufacturing superior quality coated aluminum products, the company operates coating lines at some of its plants—including its showcase plant, which is one of the largest such facilities in the U.S.

It was at this U.S. facility that the company began experiencing a number of product returns due to off-flat material. The aluminum manufacturer identified a need to increase their tension level line productivity—and to reduce the number of off-flat returns from their customers.



case study

Responding to the query from the aluminum plant's Finishing Electrical Engineer, the GE Drives and Controls Field Engineering team was able to conduct a productivity study that determined a range of process improvements GE could provide to the plant.

Working closely with the customer's engineering and production teams, GE proposed a controls upgrade that could increase line speed, improve reliability, reduce scrap, and improve the drive system's limited diagnostics.

Installation in Just Ten Days

By implementing the project in stages—a pre-work phase and a system-conversion phase, GE's Drives and Controls field engineers were able to complete the upgrade within a ten-day outage time.

GE's team of specialists upgraded the aluminum sheet manufacturer's existing Siltrol+ power bridges to DC-2000 controls and upgraded the GE Directomatic II analog control to a GE Innovation controller. These upgrades resulted in dramatic improvements, including:

- **Increased yields.** Tension level line speed was increased by 50%, allowing the number of aluminum coils produced to rise from 17 to 20 coils per shift. This resulted in a total increase of 3000 coils per year for a profit of \$1.3M.
- **Increased productivity.** GE's new strip transport technology included auto payoff reel stop and digital elongation control—yielding material savings of 120 feet per coil for additional savings of \$200K.
- **Increased quality.** The new process greatly improved the quality of the end product—resulting in fewer customer complaints, returns, and business that otherwise might have been lost due to off-flat material.



Extending the Life Cycle and Reducing Maintenance

In addition to extending the life cycle of the Siltrol+ drives, the upgraded equipment eliminated the need for difficult-to-obtain spare parts—such as analog drive/control printed circuit cards, field terminal board assemblies and field excitors.

Payback in Six Months

Within six months of GE's project completion at this mill, the plant was able to achieve payback of their \$750K investment. Since completion of the project, the tension level line is continuing to operate with the high reliability required by the customer, and occasional routine service is provided by GE.

Along with this successful installation, GE has worked closely with the customer to complete several additional projects in the same area of this plant.



For more information about GE Industrial Services and our Drives and Controls offerings, contact your GE representative.