

Aluminum Cold Mill

A Metals Case Study

The Application

An aluminum manufacturer of light and medium gauge aluminum foils, used in the packaging and automotive industry, needed a major retrofit on their 72-inch, 4-high, 2000 HP breakdown cold rolling mill.

Shape control for the continuous cast coils needed improvement, and because of this, production levels were limited. PCT provided the PLC control and operator stations, as well as the mechanical and electrical installation for the project. PCT was chosen because of a past partnership providing turnkey reconstruction management of an aluminum cold mill after a fire. PCT provided a new digital drive system for the cold rolling mill.



The PCT Solution

PCT increased the mill's productivity by improving shape control and reducing between-coil time. Shape control, a major concern for Norandal USA, was improved by providing the following:



- ◆ A new hydraulic gauge control system
- ◆ A new work roll bending scheme
- ◆ New entry bridle equipment
- ◆ Upgraded flatness and spray controls
- ◆ A new shape roll

Once improved shape control was established, the mill became less of a bottleneck in regards to production throughput. New electric drive controls were also added; these controls used a

SSD digital drive system to improve speed control on the existing motors and reduced between-coil time.

The PCT Solution

By improving speed control, PCT has helped increase the amount of useable product per coil. PCT also provided a new control system, including a GE PLC system employing a fiber optic link, to the digital drives and linked it *via* Ethernet to the Level 2 mill control system.

Other modifications provided by PCT included:

- ◆ Operator interface stations in the pulpit and on the mill
- ◆ A new operator's pulpit and control consoles
- ◆ A new trim removal system
- ◆ High- and low-pressure hydraulic piping routing and installation
- ◆ Electrical conduit and cable installation planning and labor
- ◆ Remanufacture of the hydraulic gap cylinders to facilitate the improved gauge control



For a project of such magnitude, this complete turnkey upgrade was completed with minimal downtime. To date, the mill has outrun production expectations, and Norandal USA has reported significant improvements in product shape and flatness.