



Case Study: Siemens SITRANS LR400 Radar Level Transmitter

**Application: Blast Furnace Iron Ore Burden Level
Steel Mill**

Problem A cable/weight system to measure iron ore burden level in the blast furnace was inconsistent, causing inefficient loads feeding into the furnace, and leading to time-consuming and costly furnace shutdowns.

Burden level is extremely critical in the “charging” process, not only for proper throughput, but to maintain proper cooling and prevent hot spots for occurring on the shell. A hot spot could eventually cause a breakout of molten iron, causing serious injury – sometimes even death – not to mention weeks of unscheduled downtime.

Current Business Result The existing cable and weight system was problematic because it would hang up, and the cable would break frequently.

The engineers estimate lost-ore costs for one hour of downtime somewhere between \$12,000 (small furnace) and \$20,000 (largest furnace). A typical unscheduled shutdown for repair would last no less than two to three hours, and would usually occur three to four times per year per furnace.

Since a fully integrated mill needs to make iron to produce the final steel product, the costs would escalate considerably if a furnace stayed on unscheduled shutdown long enough to interrupt steel production.

Solution The customer tried the Siemens LR400 non-contacting radar unit on one furnace and it worked well enough to implement this solution for all the blast furnaces in the plant. Accurate level measurement is so important that two LR400s will be used on each of the four furnaces for redundancy.

The simple result: Installing a non-contact radar solution to measure burden level has increased production, reduced furnace shut-downs, and improved product consistency. So far, LR400s have been installed in three of the four furnaces.

Customer Comment **Since we installed the first LR400s in summer 2003, we’ve had no unscheduled shutdowns caused by burden level problems.**

When we figured out the savings, it was substantial: On our small furnace, it’s between \$72,000 and \$144,000 per year. On our biggest furnace, we’re saving between \$120,000 and \$240,000 per year.