

SIEMENS



PROCESS INSTRUMENTATION

A belt scale system **worth its weight in gold**

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Rings, watches, necklaces – walk down the street and you'll see shiny gold jewelry of all shapes and sizes.

Yet this expensive material starts out like any other mineral: in the ground, dirty, and waiting to be discovered.

A precious metals processing plant in Asia needed to accurately and reliably measure the gold ore during the transport to the site's ball mill. The conveyor transporting the ore to the ball mill had a long concave curve limiting the places a belt scale could be located.



Technicians at the minerals processing plant installed the Milltronics MMI belt scale and SITRANS WS300 speed sensor easily and quickly.

From the ground to solid gold

The mine extracts ore from a high-grade refractory gold deposit. Primarily the refractory ore is processed by conventional flotation on site and the concentrate is shipped to another plant, where gold bars will be produced using pressure oxidation and cyanidation technologies.

The conveyor has a 51-inch belt width and runs at 125 feet per minute. The gold is transported in at a nominal flow rate of 120 tons per hour. A gravimetric tensioner is on the conveyor to ensure a constant belt tension along its 470 foot length, with idlers spaced on the conveyor every 3.2 feet.

Although not a scale intended for use in trade or load out, the company required that it meet metrological approvals for the local governing agency. Siemens belt scales are approved for most metrological agencies globally, including NTEP, OIML, MID, Measurement Canada, GOST, and SABS.

This site already had a scale installed from a competitor: a full frame four-idler design. Unfortunately the scale was installed in an area that is not desirable for accurate weighing performance near the drive pulley. The reason was due to its size and the fact that the conveyor is curved, limiting the options for installation based on these constraints.

The four-idler model was reporting an accuracy above 1% and also experienced issues with temperature influences. At sub-zero temperatures, the four-idler model would produce a significant error. Upon investigation, the customer discovered that the large frame of the four-idler scale was deforming under the thermal expansion and contraction forces. This was creating erroneous signals on the load cells being measured as product weight.



The belt scale relays information to the Milltronics BW500 integrator, which provides operators with belt speed, material flow rates, and other crucial information.

Better accuracy to the rescue

Siemens offered the Milltronics MMI belt scale, a combination of two or more MSI belt scales in tandem. The unique design of the single idler model uses a direct suspension system, eliminating the need for pivots that must be properly maintained for proper scale operation and allowing for quick and easy installation. In addition, this design reduced the amount of total weighing space required, allowing for a more suitable area in the conveyor to be selected.

The integrator was connected to the plant network via the Profibus DP option, allowing for total integration of the scale into the plant automation system.

After a fast and headache-free installation and commissioning, the belt scale system was put into service. After monitoring the scale, the accuracy obtained was 0.15%, which more than satisfied this company's needs!

Legal Manufacturer

Siemens Industry, Inc.
100 Technology Drive
Alpharetta, GA 30005
United States of America
Telephone: +1 (800) 365-8766
usa.siemens.com/pi
Order No.: PICS-00193-0422

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