

Belt Scale Improves Talc Grinding Efficiency

Luzenac Group is the world's leading talc producer with 11 mines and 20 processing plants in Europe, USA, Canada, Mexico and Asia-Pacific. Luzenac has a continuous improvement program geared to providing the highest quality and lowest cost talc minerals to its customers.

Milling and refining minerals consumes high quantities of electricity and fuel. Therefore, it is important to maximize production rates through their high power grinding systems to lower the kilowatt hours and gallons of fuel consumed per ton of production.

When the Luzenac America Vermont Division needed to improve the performance and efficiency of their talc grinding operation they approached Thayer Scale. It was determined that the best way to improve the performance of the grinding mills was to have precise control over the amount of material fed into the mills. Luzenac was using a belt conveyor to convey the raw talc to the grinding mills.

Thayer Scale's engineering department studied the customer's application and by using its proprietary computer software, specifically developed to apply Thayer conveyor belt scale theory, a specific belt scale suspension configuration and its location within the conveyor was chosen.

In order to conveyor weigh dusty fines and "stone like" aggregate materials in an accurate and repeatable fashion, the selected conveyor belt scale would require rugged construction and a spill-proof/jam-proof suspension design. To provide an accurate and dependable solution for this application, the company combined the benefits of its proven "Rocking Flexure" fulcrum with a completely new "pipe stem" single idler suspension system that incorporates built-in

storage for its calibration weight (no test chains required).

Thayer Scale's "Quarry King" Conveyor Belt Scale suspension system is fabricated from slim flat metal elements (carbon steel standard, & stainless steel, option) that are precision laser cut from sheet stock, welded to, and branch outwardly from a centrally positioned tubular "spine" shaft. This shaft runs axially to the conveyor and directly under the centerline of the belting. This low surface area design minimizes tare in the form of dust accumulation. Unlike conventional conveyor belt designs that can trap and hold aggregate material spilling from the edge of the belting, the Quarry

King has no structural elements that run parallel to, and in close proximity of, the conveyor side stringers.

The suspension system is longitudinally restrained and pivoted at the in-feed (approach) end on the proprietary RF Fulcrum arrangement that provides immunity to uneven settling and distortion of the conveyor stringers, while the downstream end is supported from a single NTEP certified strain gage load cell loaded in pure tension, and protected from the effects of all extraneous lateral forces.

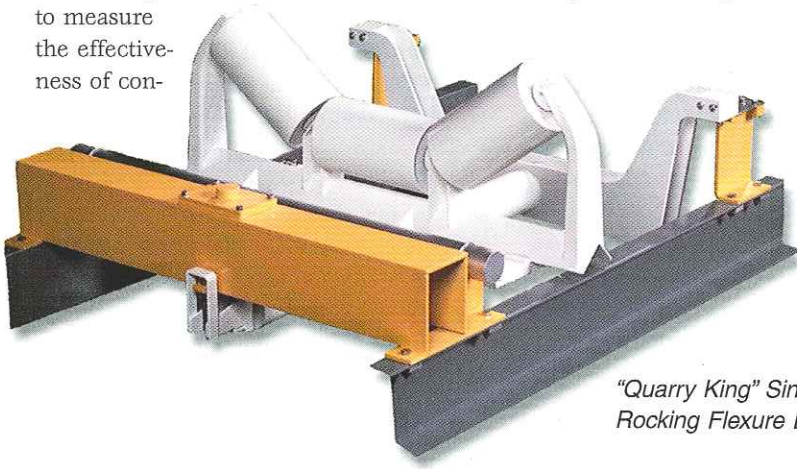
A key advantage to this design is that the load cell can be quickly and easily removed and replaced without disturbing the weigh idler itself, and its critical



"Quarry King" Single Idler Belt Scale
14" wide on a 10° incline conveyor

alignment. Therefore, the Quarry King eliminates the tedious and costly task of re-setting and aligning the weigh idler, as well as the need to conduct another material test upon re-commissioning. The non-weighed Bridge Element that supports the load cell also includes the supporting brackets for storing the calibration test weight, allowing it to be easily moved to its "calibration" position on the suspension system whenever desired. The calibration weight provides a repeatable and traceable calibration standard to ensure confidence in the accuracy of the scale measurement.

Senior Process Engineer, Bob Treworgy says "installing a Thayer Quarry King belt scale with PI-164 integrator to monitor the ore feeding the grinding system has allowed the plant to measure the effectiveness of con-



*"Quarry King" Single Idler
Rocking Flexure Belt Scale*

rol settings and process modifications. The low-cost single idler Quarry King scale was very easily retrofitted onto an existing belt conveyor. After installation and adjustments, the scale has performed flawlessly and has required infrequent calibrations. Thayer has provided outstanding on-site and over the phone support during and after the installation. As Luzenac continues to improve processes by analyzing process inputs and outputs, we will likely add additional belt scales and our experience with this Quarry King will bring us back to Thayer."

Thayer Scale's Quarry King Conveyor Belt Scale is an economical, easy-to-install, continuous weighing solution for industry that is easy to maintain.

Thayer Scale - Hyer Industries Inc.



*Series 5200 Belt Scale Integrator for
strain gauge and LVDT load cells*



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