



Radiometric Belt Scales

Process operators moving large volumes of dry solids often use conveyor belt or screw conveyor systems and require a method of monitoring how much material is being moved at a given moment or cumulative mass being moved over a period of time. Radiometric measurement offers a non-contact measurement opportunity to provide instantaneous belt loading information and provides input for total mass transfer.

The radiometric weigh scale offers considerable advantages over mechanical type scales which must contact the material to measure the weight. Mechanical scales can be negatively affected by varying belt tension, misalignment, & corrosive/abrasive/dusty environments, where radiometric scales are unaffected due to the non-contact nature of measurement. The key benefit of the radiometric technology is dramatic operational and installation costs savings versus other technologies.

The principle of measurement works by projecting a low intensity radiation field through the belt or auger, and as mass accumulates on the belt it attenuates that signal. By careful

measurement of the beam attenuation, the radiometric scale can directly measure the mass present on the belt or auger.

A typical nuclear belt scale consists of a radioactive source, a radiation detector, and the frame mounting assembly that locates the measurement equipment around the conveyor belt system. If the belt has variable speed, a tachometer can be used to measure the changing speed and adjust the measured mass throughput in real time.

VEGA Americas can quickly qualify if a radiometric scale is a good match for measurement on conveyor belt or screw conveyor when provided the following information.

- 1) Belt or auger size
- 2) Belt speed or auger rotation rate
- 3) Expected mass per unit time (i.e. ton/hour) loading.

The VEGA WEIGHTRAC31 (WT31) offers a reliable measurement tool for measurement of mass flow in a variety of conveyor systems and processes in power generating stations, raw material mining and processing, aggregate production, and pulp and paper industries.

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