



Technical Article

Belt Weighing Test Facility at Warren Spring Laboratory

Edited by on 6. Oct. 2023

[Published in bulk solids handling, Vol. 1 \(1981\) No. 2](#)

The economic and other advantages of belt weighers are reviewed and a history of research into belt weighing at Warren Spring Laboratory (WSL) is given. The paper then describes the aims and objectives of the present Belt Weighing Co-operative Project, which includes industrial sponsorship, and its mode of operation. A full description is given of the mechanical aspects of the industrial scale troughed belt test facility as well as the instrumentation and the computer system for collection storage and analysis of data. Experimental data and a typical computer print-out are included to demonstrate typical results that can be achieved from the rig.

Continuous weighing of granular material as it is carried along a conveyor belt can offer economic advantages to management in process control, stock control and in accounting, but only if accuracies can be guaranteed to fall within a specific tolerance, typically better than $\pm 1/2\%$ full scale deflection. Apart from neglect of belt weigher manufacturers' recommended operating procedures, the more obvious sources of inaccuracy in commercial installations are:

- Poor calibration techniques.
- Poor installation.

- Misalignment of idler-sets on the weigh scale and of threshold idler-sets, so that the effective weigh-length varies according to the load on the belt.
- Poor belt tracking or lateral variation of belt position on idler-sets.
- Poor installation and positioning of belt speed sensors so that the measurement does not the actual weigher length.