



Attached is literature illustrating some of our conveyor scale components. Hopefully this information will give you a sense of the careful thought applied to the design of and the quality built into these products.

Conveyor belt scales are built by many different manufacturers in a number of configurations. With all of the many claims of excellence, it is sometimes difficult for the end user to separate the truth from the fiction. Some considerations include:

- 1) A few manufacturers still use the LVDT as a weight sensor although this 1960's technology has now been mostly replaced by precision loadcells. A precision load cell introduces virtually no error into the weighing system. A typical specification for the Total Error in a load cell caused by its non-linearity, its hysteresis, and its repeatability is only 0.02% of its rated output. A 50°F change in temperature will only change its calibration by 0.07%. Errors in today's weigh scales are not caused by the load cell! They are caused by the real world adverse external forces of wind, idler friction, belt sag, belt tracking, and by poor scale rigidity, bridge alignment, etc. A properly designed weighbridge assembly can minimize these errors.
- 2) Some current designs utilize two load cells, mounting one at either end of the weighing idler. This is done in an attempt to accommodate side-to-side weight unbalance on the idler caused by poor belt tracking or off center loading. Since the two load cells are each mounted rigidly to their side of the conveyor frame and also rigidly connected by the idler, any misalignment of the mounting surfaces and the resultant torque applied to the load cells can easily cause load cell overload, non-linearity, or failure. A properly designed single load cell scale does not react to or sense the mounting frame stresses imposed by mounting surface misalignment.
- 3) Scales used in industrial applications must be designed with operating clearances that do not allow material to build up or in any way restrict the 'movement' of the weigh idler.
- 4) Some sources argue that a dual idler bridge is required for high accuracy. This argument does remain valid for those older designs that react to the rotational moments caused by idler friction, belt sag, off center belt loading or belt tracking. Most common in this category are those scales that use a mechanical configuration that is hinged or restrained at one end of the bridge assembly, with the load cell supporting the other end. SYSTEMS' single loadcell weighbridge *inherently* ignores rotational moments from any source.
- 5) Everyone claims their unit is easy to install. Most are. Improper installation, however, remains the primary source of scale error. Using a weighbridge that is designed to ignore some of the real world alignment problems and understanding the considerations of belt speed and weigh span can simplify installation, insure accuracy over wide operating ranges, increase the zero or empty belt stability, and assure long term stability.

Where the inclined angle of the conveyor is not constant or the conveyor is part of equipment that is in motion, SYSTEMS can provide a Reference Sensor that can minimize the resultant errors associated with these applications.

Properly designed and carefully installed, today's high tech scale is simpler, lower cost, more accurate and more stable than ever before.

SYSTEMS Equipment Corporation manufactures a complete line of controls and control related components for the asphalt and aggregate industries. Our products are in use worldwide. The company sells both through dealers and factory direct. Factory service is available to our customers in support of our products.

Thank you for your interest in our company. SYSTEMS prides itself on its knowledge of this industries requirements and our ability to deliver a working product - *no excuses*. Please call if you wish additional information.

Sincerely,

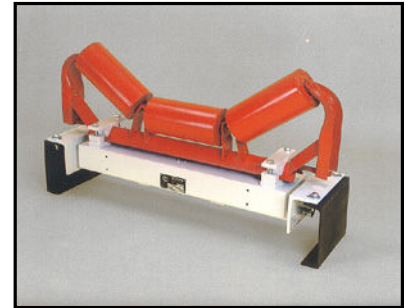
Orrin Grangaard

President, SYSTEMS Equipment Corp.

BELT SCALE COMPONENTS

Model WB-xx Belt Conveyor Weigh Bridge

This weigh scale was designed by SYSTEMS personnel to accurately weigh the material carried on a belt conveyor under less than ideal, real life, operating conditions.



Specific Design Features.....

- Rotational moments at the weigh idler caused by belt sag, idler friction, off center loading, and belt tracking are inherently ignored by this weighbridge design.
- Simple, two-piece fall through frame design will not trap material or moisture and provides maximum clearance between scale and conveyor.
- Compact design for easy installation. Drop in width of 5 inches. Drop in depth of 7 inches.
- Available in belt widths of 18 to 72 inches.
- Single, high capacity, low cost, platform loadcell. Loadcell is designed to measure only the vertical weight component and to inherently ignore any off center loading moments.
- Interchangeable loadcells available from multiple sources. NTEP certification available.
- Weighbridge mounts directly to conveyor frame and completely isolates any side to side frame misalignment from the loadcell, both at installation and in operation.
- Weigh idler clamps to a rigid channel mounted directly on the loadcell; No rubber bushings or other hinges are required or utilized.
- An aluminum weigh idler mounting channel is used to minimize the dead weight on the loadcell. Scale accuracy and stability are enhanced by maintaining a high ratio of live load to dead load. Due to the low mass, bridges generally do not need to be secured for transport except when small loadcell capacities are required.
- Simple empirical installation alignment and calibration procedure.
- Comes complete with idler modification braces, height adjustment shims, and installation, alignment and calibration procedures.

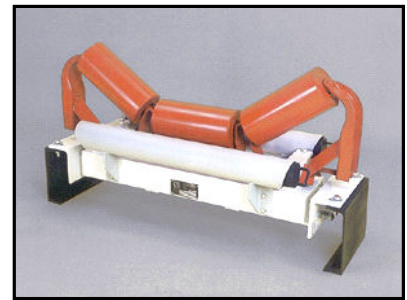
Belt Scale Test Weights

NOTE

The use of test weights is highly recommended, as it provides a simple, quick and accurate method of checking belt scale electronic calibration and stability. A manual version is available for occasional use. A remotely operating version is available for regular use or when access is not convenient.

Model WB-TW Manual Dual Test Weight Kit

- Test weights are applied by manually inserting one or both of the equal sized steel weights into their scale mounted receiver tubes.
- The use of two equal sized weights allows the user to readily verify the linearity of the loadcell and all subsequent electronics.



***** OR *****

Model WB-RCW Remotely Controlled Test Weight

- A 110-volt AC powered remotely controlled test weight, compatible with SYSTEMS Model WB-xx belt conveyor scales.
- Electric rotary actuator carefully places and removes the single, 100-pound test weight from the bridge assembly without creating loadcell damaging impacts or misalignments.
- Self-centering assembly, provided with ample operating clearances, allows for accurate and repeatable test results.

