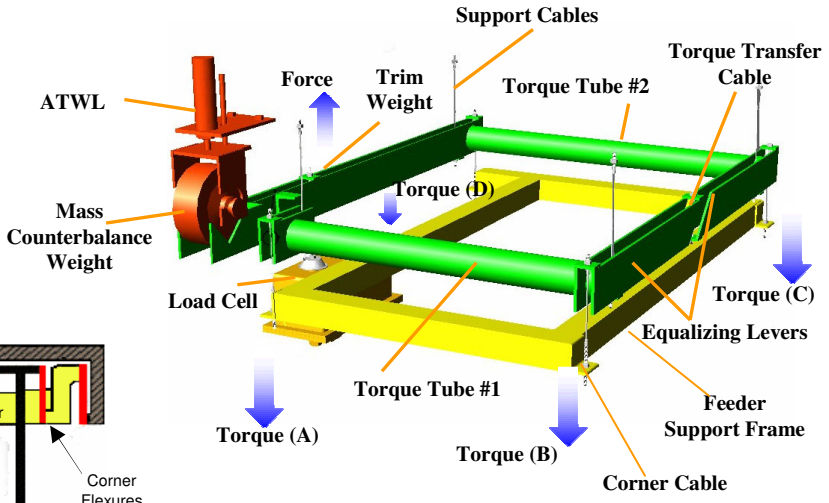
BUILT *SMART*
BUILT TO *SURVIVE*

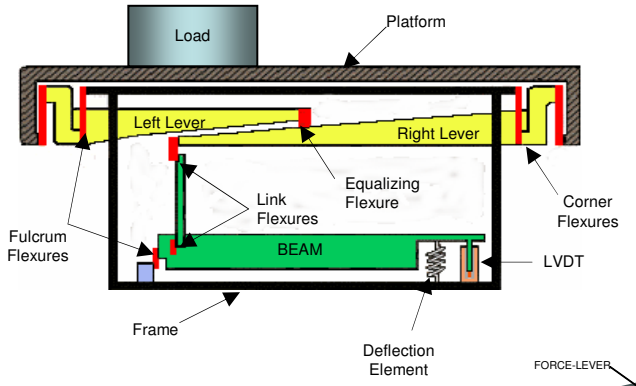
THAYER Force Measurement Suspension System

Thayer Scale is well known for its proprietary "*Flexure Plate*" and "*Flexure Cable*" Force Measurement Suspension Systems, which are available in a number of capacity ranges and configurations to suit the unique needs of the principal classes of continuous weighing and feeding equipment.

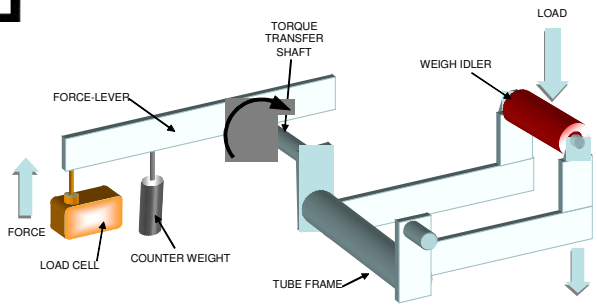
A Force Measurement Suspension System ("FMSS") is the arrangement of active mechanical elements interposed between the load receptor (platform, hopper, belt) and the load cell. Properly designed, the FMSS functions as a force vector filter that permits the sum of the chosen unidirectional force components to pass through the system to the load cell while blocking all other nuisance, erroneous or destructive force vectors.

The FMSS can be configured to provide other outstanding benefits, depending on the particular needs dictated by the type of weighing equipment employed. See back for details.

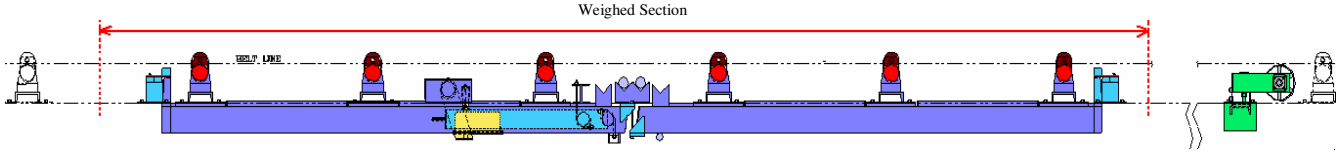




Flexure-Plate Platform
FMSS



"D"-Series Weigh Belt
FMSS



6-Idler Conveyor Scale
FMSS

Thayer Scale-Hyer Industries, Inc.

P.O. Box 669, 91 Schoosett Street, Pembroke, MA 02359
Ph: (781) 826-8101 **FAX:** (781) 826-7944
E-MAIL Sales@ThayerScale.com

Force Measurement – Sept. 2002

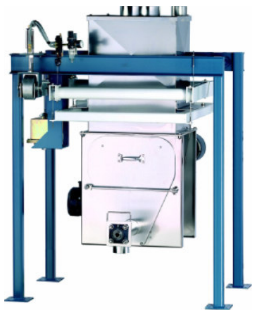
Force Measurement Suspension System

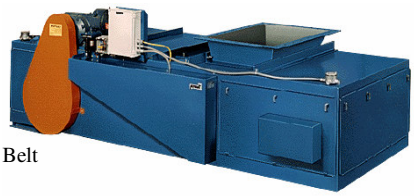
A properly designed *FMSS:*

1. Provides adjustable mechanical TARE balancing of dead loads (typically as high as 200 times NET Loads), thereby enabling the full utilization of the available load cell force range. The resulting maximization of the measurement signal reduces signal transmission problems, enhances zero temperature stability, reduces susceptibility to moisture migration, and lessens dependency on high quality terminal connections. The adjustability of TARE balancing permits future changes in the dead load equipment, such as that required by a new volumetric feeder or a larger hopper.
2. Reduces deflection of load receptor to fraction of load cell deflection. On Conveyor Scales and Weigh Belt Feeders, this means less sensitivity to belt tension effects. On Loss In Weight Feeders, this means less sensitivity to inlet/outlet flexible connections and "weigh loops" wiring.
3. Reduces zero shifting as a result of foundation distortion. This is a major and poorly understood problem in conveyor weighing in particular. Aside from well known "belt errors" generated through the load receptor side of the system, significant zero shifts can occur through the foundation side of the system if the supporting frame structure underneath yields under load or settles over time. Loss In Weight feeders are particularly sensitive to foundation distortion owing to their reliance on exceptionally high measurement resolution and frequent load sampling. Thayer Scale's "Cable Scale" Suspension Systems have proven effective where the weighing system is hung from overhead structures, supported on wheels, or moved about by forklift.
4. Provides preferred access location of load cell for inspection or removal. Load receptor does not have to be disturbed. Very important on conveyor scales, where the re-alignment of idlers necessitated by load cell removal is a dreaded task, or on Loss In Weight feeders, where there is oftentimes a need to remove the volumetric feeder and its connections first.
5. Simplifies the application of Test Weights for calibration checking. The *FMSS* can be configured to accept automatic means for applying and storing weights initiated from a remote location. This is a preferred system where quality control procedures dictate "Calibration Status" printouts on production reports.
6. Provides for lower signal velocity and acceleration under dynamic conditions. In conveyor weighing, a multiple idler FMSS having a symmetrical sensitivity gradient across the longitudinal axis of the scale can provide accurate weighing at speeds in excess of 500-600 fpm. This is possible because as material rapidly crosses the suspension system, the force experienced at the load cell is changing at a relatively slow rate.

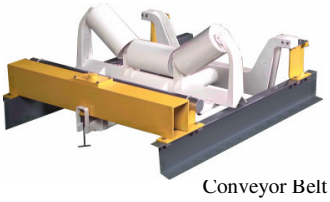
"M" Low Density Weigh Belt

Loss In Weight Cable Scale





"MDL" Weigh Belt



Conveyor Belt Scale

Thayer Scale-Hyer Industries, Inc.
P.O. Box 669, 91 Schoosett Street, Pembroke, MA 02359
Ph: (781) 826-8101 **FAX:** (781) 826-7944
E-MAIL Sales@ThayerScale.com