



THAYER SCALE

CONTINUOUS WEIGHING & FEEDING OF BULK MATERIALS

MODELS 1RF-3ASG & 1RF-4ASG "QUARRY KING" SINGLE IDLER BELT SCALE

- Excellent Value.
- Easy to install/startup.
- Accurate measurement.
- Long term calibration stability.
- Quick calibration method using supplied test weight.
- Now available with *Virtual Weigh Span Technology*



THAYER “QUARRY KING” Single Idler Conveyor Belt Scale

FOR outdoor conveyor weighing of dusty fines and “stone like” aggregate materials where rugged construction and spill-proof/jam-proof suspension design are the most essential attributes. Working in combination with Thayer Scale’s proven “Rocking Flexure” fulcrums is a completely new “pipestem” single idler suspension system incorporating built-in storage means for its calibration weight (no test chains required).

This combination of unique elements provides important advantages for neglected-maintenance operations where on-going dust build-up and spilled aggregates are known to foul conventional suspension designs. Applications include troughed belt conveyors of 14-48” belt widths (Series 1RF-3A for 14”, 18”, 24”, 30”; Series 1RF-4A for 36”, 42”, 48” belt widths) operating at speeds up to 600 fpm and inclines up to 18 degrees.

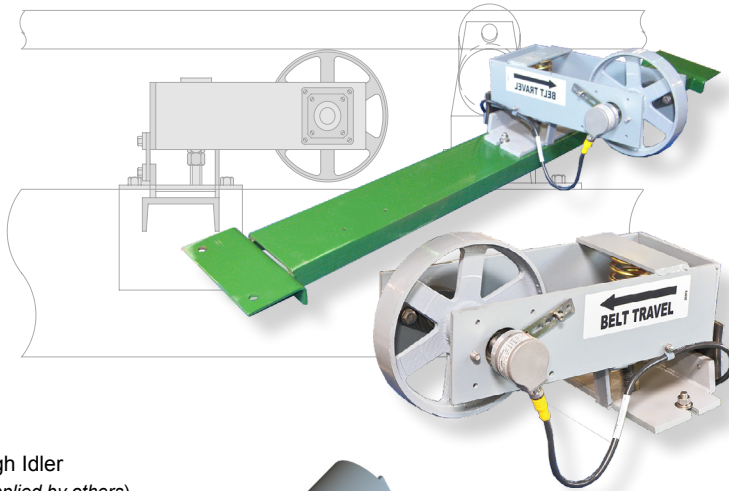
The “Quarry King” suspension system is fabricated from slim flat metal elements (carbon steel standard, stainless steel optional) which are precision laser cut from sheet stock and welded to, and branch outwardly from, a centrally positioned tubular “spine” shaft running axially to the conveyor and directly under the center line of the belting. These elements, two of which support the weigh idler, lie in a vertical plane so as to eliminate tare build up areas. There are no structural elements running parallel to and in close proximity with the conveyor side stringers as in conventional designs to trap and hold aggregate material spilling from the edge of the belting.

The suspension system is longitudinally restrained and pivoted at the in-feed (approach) end on Thayer Scale’s proprietary RF Fulcrum arrangement, while the downstream end is supported from a **single** NTEP certified strain gauge load cell loaded in pure tension, protected from effects of all extraneous lateral forces (belt tension, friction, torsion, etc.). A key advantage is that the load cell can be quickly and easily removed and replaced without disturbing the weigh idler itself, thereby eliminating the tedious task is re-setting and aligning the idler, and conducting another material test upon re-commissioning. The non-weighed Bridge Element that supports the load cell also includes the supporting brackets for storing the Test Weight which can be easily moved to its “calibration” position on the suspension system whenever desired.

Precision Belt Speed Measurement

Accurate belt speed measurement requires the use of a precision wheel and pulser. A spring is used to maintain proper contact pressure of the wheel with the tension side of the belt in all operating conditions. The THAYER belt travel pulser assembly includes a precision cast/machined wheel with a “pre-calibrated” circumferential tolerance of $\pm 0.05\%$ and a high resolution digital transmitter. The transmitter produces pulses equivalent to 1/100 to 1/200 of a foot of belt travel. The speed pick-up wheel has a narrow face width so it is less susceptible to material build-up, which can result in speed measuring errors. Since belt stretch is not constant throughout the length of the conveyor, and therefore, can affect speed measurement, the speed pickup produces a more accurate speed signal than that which is produced by tail pulley mounted speed encoder.

- Digital Pulse Output
- Heavy-duty Construction
- Spring loaded to maintain positive tracking
- Self-cleaning
- Minimum surface area for material build-up
- Easy to install
- Unaffected by temperature and voltage variations

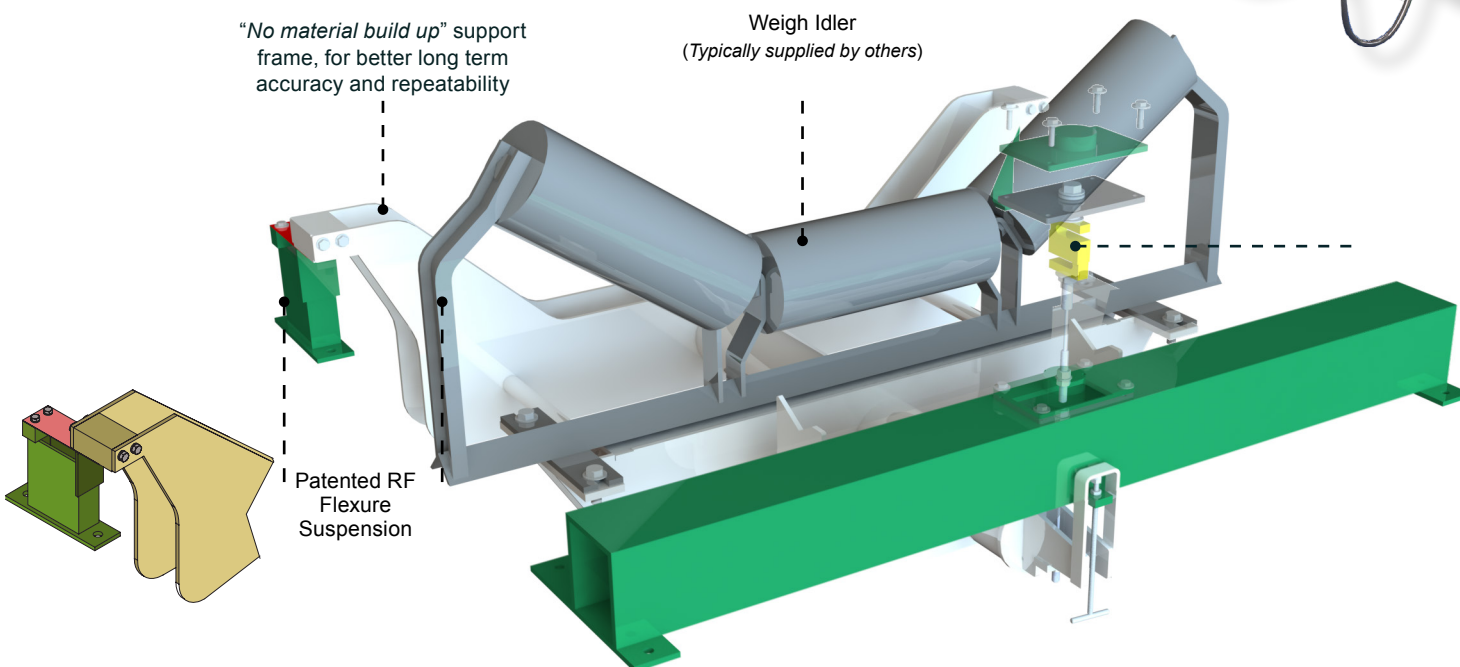


Thayer Scale’s new Model I-340 Integrator is a full featured instrument in a single, compact package. It performs the same functions as an instrument costing many times more without sacrificing the accuracy that is associated with Thayer weighing products. Simplicity of use has always been a very important factor in designing an instrument and the I-340 has inherited all the time and labor saving methods THAYER has developed over the years.

The I-340 Integrator contains special patented software package called **Virtual Weigh Span** Technology that was specifically designed to be used with lower cost and lower accuracy single idler belt scales.

Imperfections in conveyor belting and its supporting elements can adversely affect weighing accuracy of belt scales. **Virtual Weigh Span** can be programmed to adjust for variations in the belt conveyor weighing system. Advantages include, higher degrees of accuracy and calibration to account for changes in the belt or belting system over time using non-mechanical adjustments. In addition, weight measurement error producing effects, some that may not be particularly known, may be reduced.

By selecting the **Virtual Weigh Span** feature it creates many of the performance benefits of having a multi-idler belt scale. With more idlers and corresponding longer weigh span, a belt scale becomes less sensitive to extraneous loading variations due to such things as splice-impact shocks, gust of wind, non-uniformity of belting weight, varying belt loading effects that are due to impressed belting curvatures (lack of flatness) that tend to decay or change inconsistently under operation, idler “wobble” effects due to T.I.R. (total indicator runout), and numerous other extraneous disturbances that can cause instantaneous measurement errors. Since a longer weigh span provides a greater degree of load averaging the scale’s response to loading changes is more gradual and its output signals used for downstream control actions (i.e. additive feeder control) exhibit slower rates of change that are more compatible with the response limits of the controlled downstream equipment.



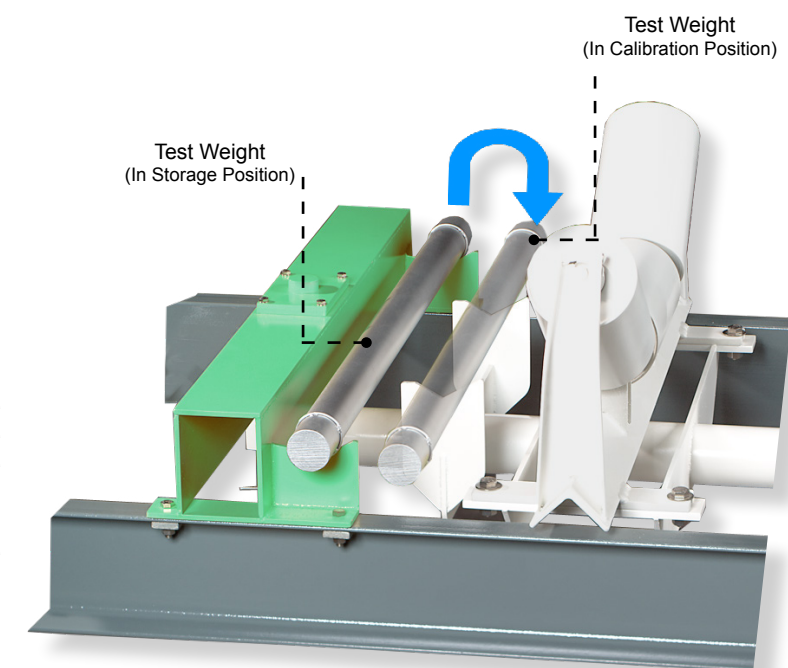
SCALE CALIBRATION



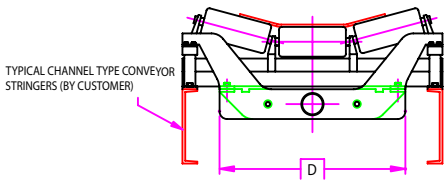
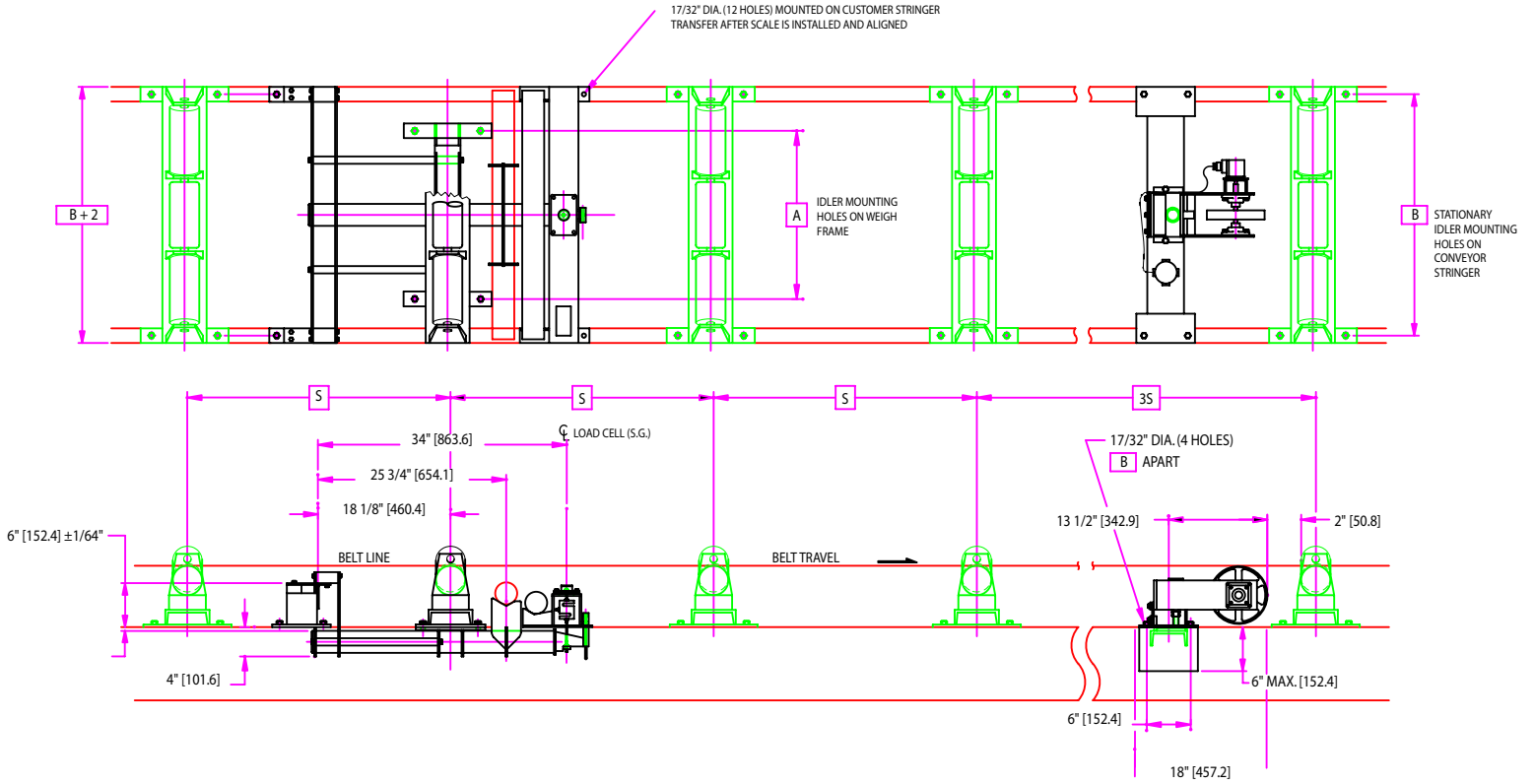
A belt scale should be thought of as a precision instrument, and as such its performance should be quickly and easily checked. Accuracy and the method and frequency of calibration are all directly related.

For these reasons, Thayer Scale uses a test weight which represents a specific pounds per foot loading value and an automatic belt length measurement system. Thayer’s unique suspension design assures that the test weight is applied in the same position every time for accurate, traceable and repeatable calibrations free from human error.

THAYER instrumentation provides prompts that guide the operator through the entire calibration sequence. This along with an easy to apply test weight simplifies the calibration process to ensure that calibrations are more likely to be performed on a routine basis.



Models 1RF-3ASG and 1RF-4ASG "Quarry King Belt Scale"

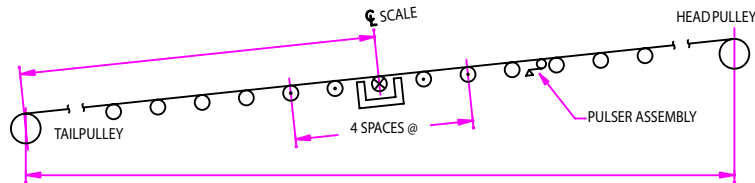


Model 1RF-3A

MODEL NUMBER	BELT WIDTH	A	B	D
1RF-3A-SG-18	18" [457.2]	17" [431.8]	27" [685.8]	19" [482.6]
1RF-3A-SG-20	20" [508.0]	19" [482.6]	29" [736.6]	21" [533.4]
1RF-3A-SG-24	24" [609.6]	23" [584.2]	33" [838.2]	25" [635.0]
1RF-3A-SG-30	30" [762.0]	29" [736.6]	39" [990.6]	31" [787.4]

Model 1RF-4A

MODEL NUMBER	BELT WIDTH	A	B	D
1RF-4A-SG-36	36" [914.4]	35" [889.0]	45" [1143.0]	37" [939.8]
1RF-4A-SG-42	42" [1066.8]	41" [1041.4]	51" [1295.4]	43" [1092.2]
1RF-4A-SG-48	48" [1219.2]	47" [1193.8]	57" [1447.8]	49" [1244.6]



PROFILE

- ⊙ SCALE QUALITY IDLER
- ⊗ MODIFIED SCALE QUALITY IDLER



MADE IN USA



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