

THAYER SCALE

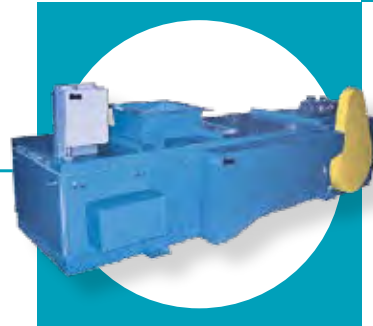
PROCESS MEASUREMENT & CONTROL EQUIPMENT

Heavy Industry Models MD & MDL Weigh Belts

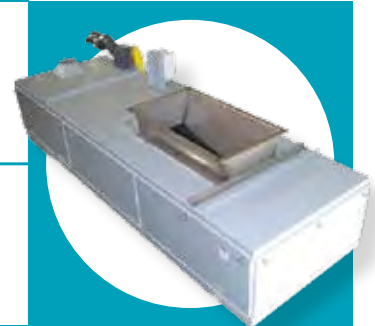
*HIGH ACCURACY
PRECISE MEASUREMENT*



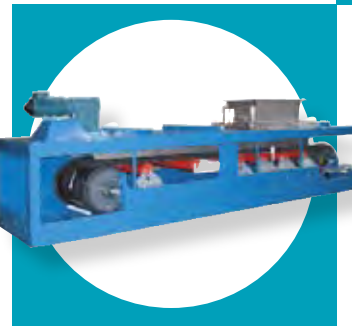
*EXTREMELY RUGGED
DURABLE
RELIABLE*



*EASY TO MAINTAIN
LOW MAINTENANCE*



*HIGH-TECH
SIMPLE OPERATION
EASY CALIBRATION*



MODELS MD MDL HEAVY INDUSTRY WEIGH BELT FEEDERS

INLET CHUTE:

A major factor in achieving uniform withdrawal from storage bins. THAYER takes very careful consideration of the inlet section design based on a given material density, particle size and handling characteristics. The correct design allows for maximum efficiency and low energy consumption.



FULL LENGTH ADJUSTABLE SKIRT BOARDS:

Installation of skirt boards along the entire length of the conveyor totally confines the material flow channel which helps control dust. Skirt boards are tapered and flared from the inlet to the discharge to prevent pinching of material between the skirt and the belt.



SCALE LOCATED OUTSIDE THE MATERIAL HANDLING AREA:

Thayer's scale is not mounted between the strands of the belt, but in a location outside of the material handling area such that an idler supporting the belt (the weigh idler) transmits the load to the scale. This design has several benefits. The scale is not prone to damage, is out of the way for cleaning, and is not subject to tare build-up that would change the weight, causing incorrect calibration. Thayer's scales can take high load direct overloads that are caused by operating personnel or by the occasional particle pinching that can occur between the conveyor and the side skirt.



AUTOMATED TEST WEIGHT LIFTER:

Thayer's Automated Test Weight Lifter (ATWL) mechanism provides a means for applying a known test weight to allow completely automatic calibration. The calibration sequence can be initiated via the weigh belt instrument keypad or via a contact closure. A self-checking software algorithm in the weigh belt instrumentation prevents erroneous calibration. Test weight calibration eliminates the need for test chains.

DRIVE SYSTEM:

Horse power requirement calculations are performed by computer. Also computerized is the selection of shafts, drive chain, gear box and motor. Head and tail pulley are selected in accordance with CEMA standards, with lagging as required.



WELDED FRAME, QUICK REMOVAL ACCESS PANELS:

THAYER weigh belts are of welded, not bolted, construction. A rigid, welded and box frame construction resists deflection and deformation under heavy loads. Frame distortion adversely affects scale measurement performance. Easy removable covers for access, designed to meet EPA and OSHA standards. Side panels, if included, are removed with quick-release fasteners (no tools required).

BELT TRAVEL PULSER:

Speed sensing is digital and accurate over an infinite speed range. Rugged speed sensor is coupled directly to the feeder tail pulley not the drive pulley and measures belt speed or belt travel.



SLACK BELT DESIGN:

Low belt tension increases belt life, produces more stable measurement and eliminates the need for belt tracking devices.

PRECISION HEAVY-DUTY IDLERS:

Precision scale idlers are mounted on individual CEMA brackets, permitting removal to either side without major framework disassembly or belt removal. Idler alignment is critical to minimize transmission of any belt tension force to the scale.



THAYER SCALE MODELS MD and MDL WEIGH BELTS

Thayer Scale's Models MD and MDL Weigh Belts are widely recognized mainline industrial continuous weigh belt feeders. They can be used with an open loop belt drive to gravimetrically totalize and measure the flow of material, or with closed control as a feeder and regulate the flow to a constant or varying set point.

The Model MDL bridges the gap between standard low capacity and high capacity weigh feeders. Some materials are too abrasive for standard low capacity feeders, lump sizes can be too large or flow rates slightly exceed specified limits, resulting in low accuracy and constant maintenance problems. These applications often can't be reliably handled by larger, high capacity weigh feeders because the relatively low flow rates fall below specified limits. (for example: feeding 1.5" lumps of coal @ 2 STPH). The Model MDL is as ruggedly built as our capacity weigh feeders, to withstand abrasive materials, but is designed to operate at flow rates just beyond the limits of our low capacity feeders.

The Model MD is an extremely rugged weigh feeder that was originally designed for the harsh environment of the cement industry but can be used in a wide variety of applications. The Model MD is the ideal weigh feeder when medium to high feed rates are required, handling high bulk density and small through large particle size materials. The Model MD can be subjected to extreme environmental conditions such as abrasive dusts, corrosive fumes, wide temperature fluctuations and vibrations without any detrimental effects on performance or accuracy.

Unlike conventional weight sensing systems wherein the weigh idler is directly coupled to a series of load cells, the Model MD and MDL weigh belts incorporate a unique Force Measurement Suspension System (FMSS) interposed between the weigh idler and a single load transducer. The FMSS is a NET weighing system that counter-balances dead load so that the entire range of the load transducer is available for weighing the material. The FMSS also prevents erroneous horizontal force vectors from being interpreted as changes in weight for unsurpassed resolution and weight measurement repeatability.

When connected to the THAYER family of instrumentation, the MD and MDL Weigh Belts can be consistently and accurately calibrated and the measurements can be presented to operators and supervisory controls in a variety of data handling methods.

The instrumentation can control the flow of material as a master feeder or as a slave proportioning its feed rate to some other master signal.

ADVANTAGES

- Long term accuracy and repeatability with low cost of ownership.
- Load transducer located external to the material flow channel.
- Weigh bridge is insensitive to the accumulation of weight that accompanies tare build-up.
- Heavy duty, welded boxed frame construction easily accommodates legs and dust removal/scavenger systems as well as length and incline variation without significant changes in configuration.
- Can be easily and economically adapted to support future capacity needs.



Standard and Special Features of Models MD and MDL Weigh Belts



Full length adjustable skirt boards



Special inlet configurations to promote material flow and reduce motor HP



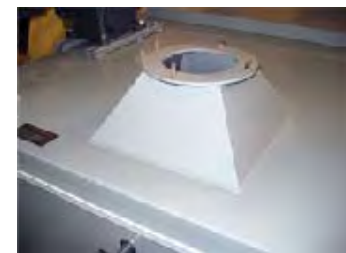
External adjustable inlet gate and removable access port to clear oversize particles



Speed sensing is digital and accurate over an infinite speed range.



Quick release "T" handles on all access doors



Standard Dust Collection Pick-up at Discharge



Optional Drag Conveyor



Optional Winged Tail Pulley prevents material build-up



Standard slack belt support idler



Optional pulley and idler lubrication manifold mounted external to the enclosure



Option "V-Plow" prevents material from building up on underside of belt



Choice of LVDT or Strain Gauge Load Cells

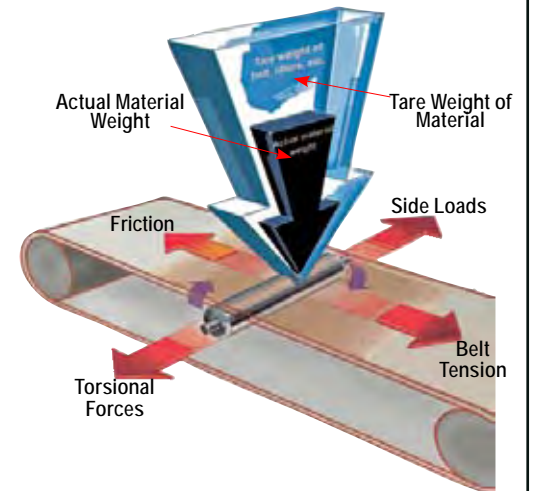


"FMSS" FORCE MEASUREMENT SUSPENSION SYSTEM

Unique technology provides isolation from all force vectors except material weight.



- A load sensor cannot distinguish between the "meaningful" force of material weight and other forces. THAYER Weigh Feeders are engineered to isolate the load sensor from these other forces for highly accurate material weighing.
- Weight sensing system is totally enclosed and requires no maintenance.
- Weight sensing system has infinite over-load protection (mechanical stops) and weight sensor (LVDT) cannot be damaged by shock loads.
- Weight signal represents only material load; the dead load (belt & idler) is completely mass counter-balanced.
- Excessive belt tension forces are eliminated by our head pulley drive and low deflection scale. Friction is defeated by using precision rollers instead of slider decks. Torsional forces, caused by off center loading and side forces, are decoupled from the true force transmission by our weigh scale.
- **Load Cell Utilization Factor >80%**
Because THAYER manufactures the load cell, we can provide a load cell with a capacity that is closely matched to the actual maximum material weight. The tare weight of the weigh idler and belt are mass counterbalanced. We design our scales such that the maximum material weight is always > 80% of scale capacity. This results in the best possible signal resolution. This flexibility is not possible with strain gauge load cells, which tend to be available in standard capacities of 10, 50, 100, 200, 500 lb., etc. Thayer's rugged load cell design assures reliable operation for the life of the weigh belt. Because our load cells never fail, they are not a recommended spare part. Unique technology provides isolation from all force vectors except material weight.
- Force vector isolation is a Thayer Scale technological advantage. It is one of the best reasons to buy from the weigh feeder experts at Thayer Scale.



SPECIFICATION

MODEL MDL

Feed Rate:

- Up to 70 Tons/hr (63 M-ton/hr) @ a bulk density of 100 lb/ft³ (1.6 gr/cm³).

Density Range:

- 20 to 200 lb/ft³ (0.32 to 3.2 gr/cm³)

Particle Size:

- Up to 1.5" (38 mm).

Volumetric Capacity:

- 18" - 1,765 ft³/hr (50 M³) @ 70 ft/min.
- 24" - 2,815 ft³/hr (80 M³) @ 70 ft/min.

MODEL MD

Feed Rate:

- Up to 400 Tons/hr (363 M-ton/hr) @ a bulk density of 100 lb/ft³ (1.6 gr/cm³).

Density Range:

- 20 to 200 lb/ft³ (0.32 to 3.2 gr/cm³)

Particle Size:

- Up to 4" (102 mm)

Volumetric Capacity:

- 30" - 4,250 ft³/hr (120 M³) @ 70 ft/min
- 36" - 4,750 ft³/hr (134 M³) @ 70 ft/min
- 42" - 6,000 ft³/hr (170 M³) @ 70 ft/min
- 48" - 7,250 ft³/hr (205 M³) @ 70 ft/min

Weight Measurement System

- Mass-counterbalanced LVDT Load Cell.
- optional strain gauge load cell available

Speed Measurement System:

- Direct coupled digital pulse transmitter mounted to tail pulley shaft.

Motor:

- 0.5 to 5.0 HP, 180 VDC Arm, 200 V Field, TENV, 230 or 460 VAC, 3 ph, 50/60 hz.
- Optional motors available.

Turndown:

- 20:1

Drive Reducer:

- C faced, coupled to motor, right angle, worm & gear type, service factor 1.5, complies with A.G.M. standards.

Drive Connection:

- Roller chain & sprocket, service factor 1.5, totally enclosed chain guard.

Weigh Belt Enclosure:

- Frame completely surrounds flow channel with top panel (removable side panels, total enclosure, drag chain clean out, hinged drop doors on bottom optional).

Contact Material:

- 304 Stainless Steel
- AR steel optional

Non-contact Material:

- Enamel painted mild steel
- epoxy paint optional.

Temperature Limits:

- Ambient 0° - 130° F (-18° - 54° C)
- Process Material 0° - 200° F (-18° - 93° C).

Accuracy (Combined Error):

- 0.25-1.0% of set rate (@ 2 sigma) based on a minimum sample of 1 minute or 2 circuits of the belt, which ever is greater.

Belt:

- Two ply polyester carcass with SBR top cover, raised 1.0" (25 mm) flanges, rated for material temperature up to 200° F (93° C) (high temperature belt optional).

Options:

- Explosion proof design.
- Automated Test Weight Lifter (ATWL)- provides for complete automatic zero and span calibration.

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MADE IN USA