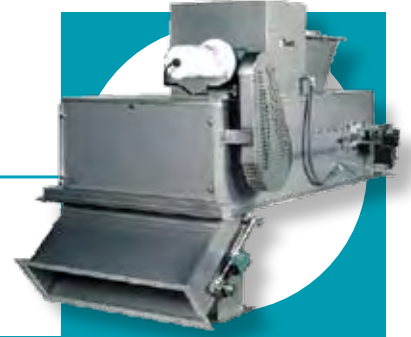


# THAYER SCALE

PROCESS MEASUREMENT & CONTROL EQUIPMENT

**Model MXL**  
**Model MXL Low Density**  
**Model MWF**  
**Model MWF-OS**  
**Weigh Belts**

*HIGH ACCURACY  
PRECISE MEASUREMENT*



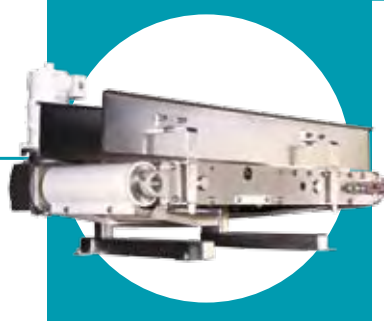
*RUGGED  
DURABLE  
RELIABLE*



*EASY TO MAINTAIN  
LOW MAINTENANCE*



*SIMPLE OPERATION  
EASY CALIBRATION  
COMPACT DESIGN*



# MODEL MXL

## Light Industry, Low Capacity Weigh Belt Feeder

Thayer Scale's Model "MXL" is a widely recognized general purpose low capacity weigh belt designed to operate accurately and reliably in harsh industrial environments with minimal maintenance. It can be used with an open loop drive to gravimetrically measure the flow of material, or with closed loop control to operate as a feeder and regulate the flow to a constant or dynamic set point.

Its unique suspension scale design counterbalances the dead weight of its rugged weighing members so that the scale "senses" only the net material load for higher accuracy weighments. This compliments its overall construction and makes it a high performance and durable industrial machine. The combination of modular components coupled with dimensions and ratings that are tailored to each application provide customized weighing solutions. Designed for ease of maintenance and simple field re-rate to adapt to future capacity changes.

When connected to the THAYER family of instrumentation it can be consistently and accurately calibrated and the measurement can be presented to operators and supervisory controls seamlessly through a variety of standard industrial interfaces. The instrumentation can control the flow of materials as a master feeder or as a slave proportioning its feed rate to some other master signal.

### WEIGHT SENSING:

Low deflection, non-wearing weight sensing system provides long term accuracy. All sensitive parts are enclosed and located outside of the material handling area to prevent system errors and maintenance problems.

Simple suspended weight sensing eliminates friction and material build-up errors that are common with slider decks or suspension systems located between the belt strands.

Test weights representing specific lbs/ft loading combine with an automatic belt travel measurement system to provide push-button calibration with error free result. Commonly used shunt or "dummy" calibration signals only test electrical outputs and do not exercise the scale mechanism. Optional Automated Test Weight Lifter simplifies the calibration sequence and provides the ability to conduct totally unsupervised calibration.

### POSITIVE MATERIAL FLOW CONTROL:

Level gate can be controlled without opening the feeder enclosure. Interchangeable inlet sections are available to suit a variety of materials.



DUST COLLECTION PORT

### ADJUSTABLE SKIRT BOARDS:

Skirt boards are both adjustable and removable, permitting quick access for cleaning.

### CANTILEVERED BELT FRAME:

Permits easy cleaning or removal of belt without disassembling feeder.

### SLACK BELT DESIGN:

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

### BELT TAKE-UP:

Belt take-up adjustment is conveniently located on the side of the pulley frame. Built with convenient hand operated "position memory" simplifies belt replacement and cleaning.

SALT • PLASTIC PELLETS • SAND • LIMESTONE • PEANUTS • COAL • CHEMICALS • ABRASIVE MATERIALS • RAISINS • BRAN • CARBON BLACK • FERTILIZER • CLAY • ALUMINA • MASTER BATCH



Scavenger Bottom



Pneumatic Diverter Valve



Sanitary Construction

### "FMSS" FORCE MEASUREMENT SUSPENSION SYSTEM

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

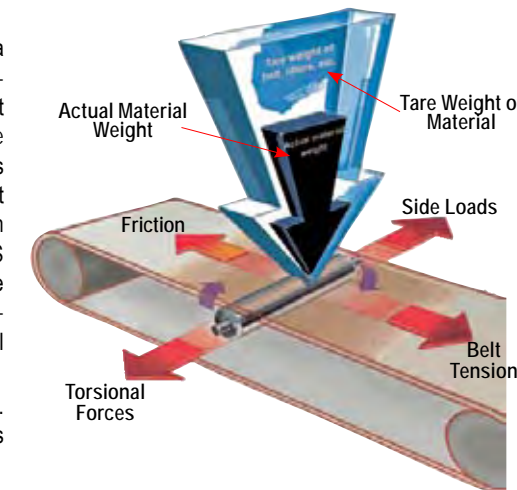


- A load sensor cannot distinguish between the "meaningful" force of material weight and other forces. THAYER Weigh Feeders are engineered to isolate the load sensor from these other forces for highly accurate material weighing.
- Weight sensing system is totally enclosed and requires no maintenance.
- 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.

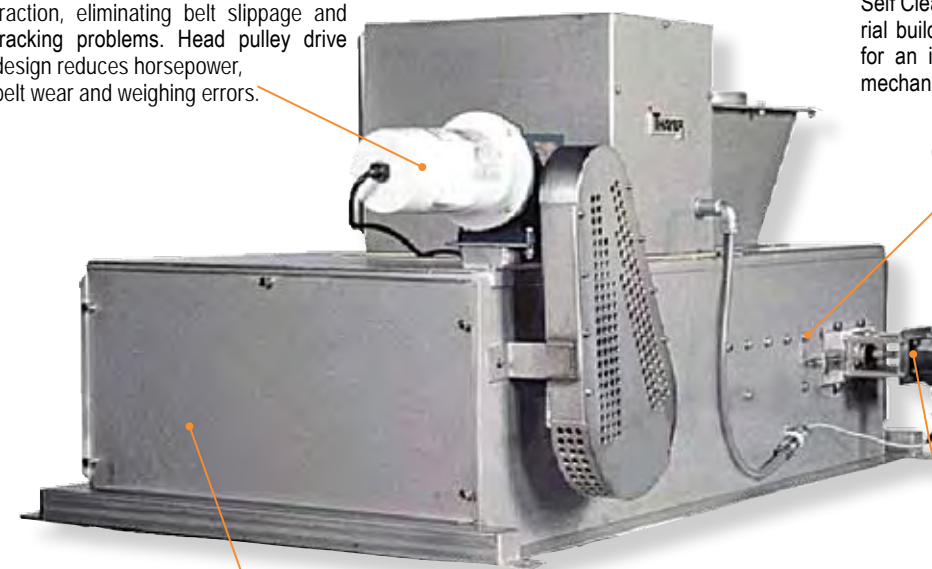


### HEAD PULLEY DRIVE:

Lagged head pulley provides positive traction, eliminating belt slippage and tracking problems. Head pulley drive design reduces horsepower, belt wear and weighing errors.

### SELF CLEANING TAIL PULLEY:

Self Cleaning Tail Pulley is not affected by material build-up and therefore eliminates the need for an internal belt scraper and belt tracking mechanism, simplifying conveyor maintenance.



### PARTIAL and FULL ENCLOSURES:

Removable covers along sides, ends, with open bottom and top enclosed.



### BELT TRAVEL PULSER:

Tail pulley mounting provides digital belt speed sensing with resolution to 0.001 feet. System detects belt slippage or breakage, while self-cleaning pulley eliminates errors due to material build-up.

# MODEL MXL LD

## Light Industry, Low Density Weigh Belt

Thayer Scale's Low-Density "MXL" is the only low capacity weigh belt feeder designed specifically to handle low bulk density materials. Because the weigh sensing system in the Low-Density Model "MXL" is engineered exclusively for these types of materials, it can deliver consistent, accurate long term performance. Thayer Scale engineers developed the technology for reliable weigh feeding of low-density materials. In these specialized applications, our Low-Density Weigh Belt Feeders have a proven record of being significantly more reliable and accurate than "standard" weigh belt feeders.

**ADJUSTABLE SKIRT BOARDS:**  
Skirt boards are both adjustable and removable, permitting quick access for cleaning.

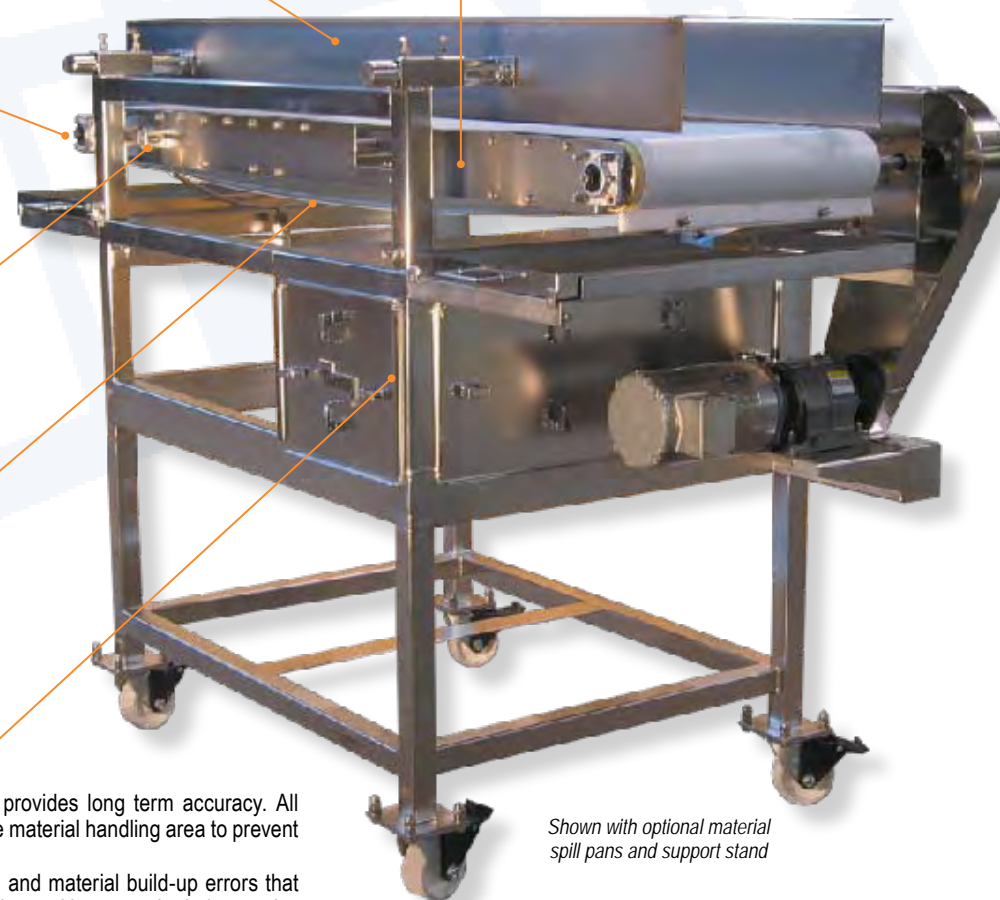
**CANTILEVERED BELT FRAME:**  
Permits easy cleaning or removal of belt without disassembling feeder.

**SELF CLEANING TAIL PULLEY:**  
Self Cleaning Tail Pulley is not affected by material build up and therefore eliminates the need for an internal belt scraper and belt tracking mechanism, simplifying conveyor maintenance.

**BELT TAKE-UP:**  
Belt take-up adjustment is conveniently located on the side of the pulley frame. Built with convenient hand operated "position memory" simplifies belt replacement and cleaning.

**SLACK BELT DESIGN:**  
Low belt tension increases belt life, produces more stable measurement and eliminates the need for belt tracking devices.

**WEIGHT SENSING:**  
Low deflection, non-wearing weight sensing system provides long term accuracy. All sensitive parts are enclosed and located outside of the material handling area to prevent system errors and maintenance problems. Simple suspended weight sensing eliminates friction and material build-up errors that are common with slider decks or suspension systems located between the belt strands. Test weights representing specific lbs/ft loading combine with an automatic belt travel measurement system to provide push-button calibration with error free result. Commonly used shunt or "dummy" calibration signals only test electrical outputs and do not exercise the scale mechanism. Optional Automated Test Weight Lifter simplifies the calibration sequence and provides the ability to conduct totally unsupervised calibration.



Shown with optional material spill pans and support stand



Optional, Partial and Full Enclosures: Removable covers along sides, ends, and top of feeder with bottom open.

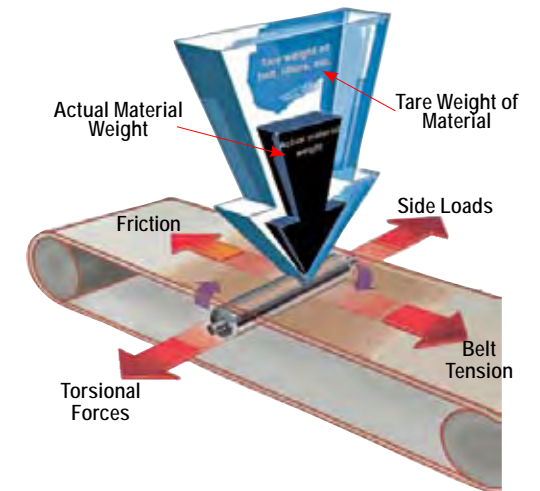


### "FMSS" FORCE MEASUREMENT SUSPENSION SYSTEM

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.



**BELT TRAVEL PULSER:**  
Tail pulley mounting provides digital belt speed sensing with resolution to 0.001 feet. System detects belt slippage or breakage, while self-cleaning pulley eliminates errors due to material build-up.



**HEAD PULLEY DRIVE:**  
Lagged head pulley provides positive traction, eliminating belt slippage and tracking problems. Head pulley drive design reduces horsepower, belt wear and weighing errors.



**MODEL  
MWF**

# Light Industry, Compact Weigh Belt Feeder

Thayer Scale's Model MWF is a widely recognized general purpose low capacity weigh belt feeder designed to operate accurately and reliably in harsh industrial environments with minimal maintenance. It can be used with an open loop belt drive to gravimetrically measure the flow of material, or with closed loop control to operate as a feeder and regulate the flow to a constant or dynamic set point.

A standard design coupled with dimensions and ratings that are tailored to each application add versatility to its capabilities. Its design for ease of maintenance and change of its ratings gives it a long useful life in a rapidly changing industrial environment.

When connected to the THAYER family of instrumentation it can be consistently and accurately calibrated and the measurements can be presented to operators and supervisory controls seamlessly through a variety of standard industrial interfaces. The instrument can control the flow of material as a master feeder or as a slave proportioning its feed rate to some other master signal.

### HEAD PULLEY DRIVE:

Lagged head pulley provides positive traction, eliminating belt slippage and tracking problems. Head pulley drive design reduces horsepower, belt wear and weighing errors.

### POSITIVE MATERIAL FLOW CONTROL:

Level gate can be controlled without opening the feeder enclosure. Interchangeable inlet sections are available to suit a variety of materials.

### CALIBRATION TEST WEIGHT

(mounted in storage rack)

### ADJUSTABLE SKIRT BOARDS:

Skirt boards are both adjustable and removable, permitting quick access for cleaning.

### BELT SCRAPER

### CANTILEVERED BELT FRAME:

Permits easy cleaning or removal of belt without disassembling feeder.

### SLACK BELT DESIGN:

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

### WEIGH FRAME ASSEMBLY with LOAD CELL

PE PELLETS • GRAINS • PEANUTS • DEXTRIN • PC PELLETS • REGRIND • LIMESTONE • PULVERIZED LIME • PVC  
• PHOSPHATE ROCK • CALCIUM CARBONATE • OATS • FLOUR • MINTS • COCOA BEANS • PERLITE

## THAYER SCALE MODEL MWF WEIGH BELT FEEDER

The MWF-101 Weigh Belt Feeder provides Thayer Scale accuracy, ruggedness and reliability and reduces measurement errors. Self cleaning pulley eliminates material build-up and belt tracking problems. Unique flared skirt design prevents material spillage and assures proper feed control. Rigid scale support system provides exceptional stability, assuring accuracy without frequent re-calibration.

Belt velocity is measured from the tail pulley, not the drive motor, providing a direct measurement of belt speed which improves both measurement and control of the material. Totally enclosed, gasketed design assures safe, dust free operation even when handling fine powder. The strain gauge load cell assembly can be easily removed then reinstalled without re-calibration of the feeder.

A standard design coupled with dimensions and rates that are tailored to each application add versatility to its capabilities. Its design for ease of maintenance and the ability to change its throughput rating gives it a long useful life in a rapidly changing industrial environment.

- Very Small Size: 25" center line inlet-to-center line outlet for the 10" wide belt and 41" for the 13" wide belt.
- Handles a wide range of materials and densities.
- Sanitary, stainless construction.
- Totally enclosed for effective dust control.
- Easy access, low maintenance design.
- Totally removable scale assembly needs no re-calibration after reinstallation.
- Excellent accuracy and stability.
- Rugged construction-built to survive.

### OPTIONAL ENCLOSURES:

Removable covers along sides and ends, with bottom open and top enclosed.

### BELT TAKE-UP:

Belt take-up adjustment is conveniently located on the side of the pulley frame. Built with convenient hand operated "position memory" simplifies belt replacement and cleaning.



### SELF CLEANING TAIL PULLEY:

Self Cleaning Tail Pulley is not affected by material build up and therefore eliminates the need for an internal belt scraper and belt tracking mechanism, simplifying conveyor maintenance.



### BELT TRAVEL PULSER:

Tail pulley mounting provides digital belt speed sensing with resolution to 0.001 feet. System detects belt slippage or breakage, while self-cleaning pulley eliminates errors due to material build-up.



Shown with S52i Weigh Belt Integrator



# MODEL MWF-OS Sanitary Weigh Belt

Thayer Scales's new Model MWF-OS Sanitary Open Construction Weigh Belt Feeder is used for processing of snack food, cereal, pasta, pet food or any other application where hygiene and ease of cleaning is important. The MWF-OS uses a rugged open frame construction, made from 304 or 316 stainless steel and is designed for "no-tools" disassembly. The Model MWF-OS can provide either "closed loop" gravimetric control of material feed rate or precise convey rate measurement and totalization of an uncontrolled or intermittent material supply.

**SKIRT BOARDS:**  
Skirt boards are removable without tools, permitting quick access for cleaning.

**CALIBRATION TEST WEIGHT**  
(shown mounted in storage rack)

**SELF CLEANING TAIL PULLEY:**  
Self Cleaning Tail Pulley is not affected by material build up and therefore eliminates the need for an internal belt scraper and belt tracking mechanism, simplifying conveyor maintenance.

**INSTRUMENTATION & MOTOR DRIVE**  
Instrumentation can be mounted to weigh belt frame or remotely located.

**HEAD PULLEY DRIVE:**  
Lagged head pulley provides positive traction, eliminating belt slippage and tracking problems.

**BELT SCRAPER**  
Counter weighted design

**CANTILEVERED BELT FRAME:**  
Permits easy cleaning and removal of belt without disassembling feeder.

**SLACK BELT DESIGN:**  
Low belt tension increases belt life, produces stable measurement and eliminates the need for belt tensioning and tracking devices.

**BELT TAKE-UP:**  
Belt take-up adjustment is conveniently located on the side of the pulley frame. Built with convenient hand operated "position memory" simplifies belt replacement and cleaning.

## THAYER SCALE MODEL MWF-OS Sanitary Open Construction WEIGH BELT FEEDER

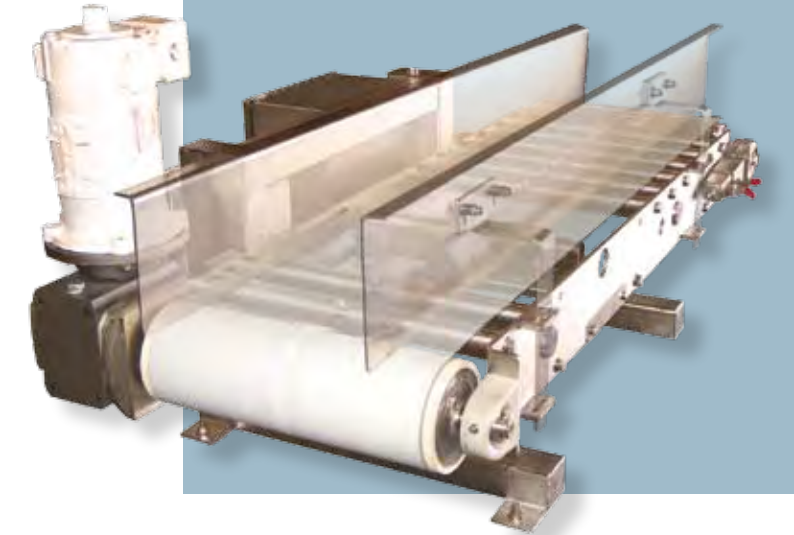
The MWF-OS Sanitary Open Construction Weigh Belt Feeder provides Thayer Scale accuracy, ruggedness, and reliability.

Self cleaning pulley eliminates material build-up and belt tracking problems. Unique flared skirt design prevents material spillage and assures proper feed control. Rigid scale support system provides exceptional stability, assuring accuracy without frequent re-calibration.

Belt velocity is measured from the tail pulley, not the drive motor, providing a direct measurement of belt speed which improves both measurement and control of the material. The strain gauge load cell assembly can be easily removed then re-installed without re-calibration of the feeder.

A standard design coupled with dimensions and rates that are tailored to each application add versatility to its capabilities. Its design for ease of maintenance and the ability to change its throughput rating gives it a long useful life in a rapidly changing industrial environment.

- Handles a wide range of materials and densities.
- Sanitary, all stainless steel construction.
- Unique belt tracking system assures positive tracking without the use of mechanical devices.
- Easy access, low maintenance design, no tools disassembly
- Excellent accuracy and stability.
- Rugged construction-built to survive.
- Cantilevered frame for fast belt removal.



### SPECIFICATION MODEL MWF OPEN SANITARY CONSTRUCTION

**Feed Rate:**

• 13" (330 mm) wide weigh belt - up to 83,000 lbs/hr (37,641 kg/hr) with a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>).

• 24" (609 mm) wide weigh belt - up to 184,400 lbs/hr (83,628 kg/hr) with a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>).

**Material Density Range:**

• 15 to 100 lbs/ft<sup>3</sup> (0.24 to 1.6 gr/cm<sup>3</sup>).

**Weight Measurement System:**

• Precision strain gauge force transducer.

**Speed Measurement System:**

• Optical pulse transmitter mounted to tail pulley.

**Motor:**

• 0.25-0.5 HP. 90 volt DC armature, permanent magnet, TENV, 115 VAC, 1ph, 50-60 Hz, continuous duty, Class B insulation or AC constant speed or Inverter Duty Motor 230-460 VAC, 3 ph, 50-60 Hz volts AC, TENV.

**Drive Reducer:**

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

**Turndown:**

• 30:1. from full scale.

**Contact Material:**

• 304 Stainless Steel  
• Option: 316 Stainless Steel.

**Non-Contact Materials:**

• 304 Stainless Steel.  
• Option: 316 Stainless Steel.

**Temperature Limits:**

• Ambient 32°F-130°F (0°C-54°C). Material: 0°F to 250°F (-18°C -121°C).

**Belt:**

• Endless two ply polyester carcass with BUNA-N, top cover, raised 5/16" (8 mm) flanges, rated for material temperature up to 250° F (121° C) FDA approved.

**Accuracy (Combined Error):**

• 0.25 to 1.0% of set rate (@ 2 sigma) based on a minimum sample of 1 minute or 2 circuits of the belt, whichever is greater.  
• ± 0.5 % of totalized weight based on a minimum sample of one minute or two circuits of the belt.

## SPECIFICATION MODEL MXL LOW CAPACITY

### Feed Rate:

- 13" (330 mm) wide weigh belt – up to 41,500 lbs/hr (18,820 kg/hr) with a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>).
- 20" (508 mm) wide weigh belt – up to 68,000 lbs/hr (30,839 kg/hr) with a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>).

### Density Range:

- 10 to 200 lb/ft<sup>3</sup> (0.16 to 3.2 gr/cm<sup>3</sup>)

### Particle Size:

- Up to 0.25" (6.4mm), consult factory when particles exceed 0.25"

## MODEL MXL LOW DENSITY

### Feed Rate:

- 100 to 10,000 Lb/hr (45-4,535 kg/hr) with a bulk density of 10 lb/ft<sup>3</sup> (0.16 gr/cm<sup>3</sup>).

### Density Range:

- 1.0 to 10 lb/ft<sup>3</sup> (0.016-0.16gr/cm<sup>3</sup>)

### Particle Size:

- Fibers, Chips, Flakes and Irregular Shapes.

### Belt Widths:

- 13" and 20" (330 mm and 508 mm).

### Weight Measurement System:

- "FMSS" Force Measurement Suspension System  
Mass-counterbalanced LVDT or Strain Gauge.

### Speed Measurement System:

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

### Motor:

- 0.25 to 0.5 HP, 90 or 180 VDC Arm, 200V Field TENV, 230 or 460 VAC, 3ph, 50/60 hz.  
Optional motors available.

### Turndown:

- 30:1

### Drive Reducer:

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

### Drive Connection:

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

### Weigh Belt Enclosure:

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

### Contact Material:

- 304 Stainless Steel  
Option: 316 Stainless Steel.

### Material Finish:

- Standard 2B Mill  
Optional: Sanitary Electro-Polish.

### Temperature Limits:

- Ambient 32° F-130° F (0°C-54°C)
- Process Material 0° F-275° F (-18°C -135°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, whichever is greater.

### Belt:

- Endless two ply polyester carcass with BUNA-N, top cover, raised 5/16" (8 mm) flanges (MXL & Sanitary MXL), rated for material temperature up to 250° F (121° C) FDA approved.

### Adjustable Bed Depth Gate:

- Standard on low capacity design, optional on low density design.

### Options:

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

## SPECIFICATION MODEL MWF

### Feed Rate:

- 10" (245 mm) wide weigh belt - up to 25,000 lbs/hr (11,340 kg/hr) with a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>).
- 13" (330 mm) wide weigh belt - up to 41,500 lbs/hr (18,820 kg/hr) with a material bulk density of 50 lbs/ft<sup>3</sup> (0.8 gr/cm<sup>3</sup>).

### Density Range:

- 15 to 100 lbs/ft<sup>3</sup> (0.24 to 1.6 gr/cm<sup>3</sup>).

### Particle Size:

- Up to 0.25" (6.4 mm) - consult factory if particle size exceeds 0.25"

### Weight Measurement System:

- Precision strain gauge force transducer.

### Speed Measurement System:

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

### Motor:

- 0.25 HP (0.19 kW), 90 volt DC armature, permanent magnet, TENV, 115 VAC, 1ph, 50-60 Hz, continuous duty, Class B insulation or AC Inverter Duty Motor 230-460 VAC, 3 ph, 50-60 Hz volts AC, TENV.

### Drive Reducer:

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

### Turndown:

- 20:1.

### Contact Material:

- 304 Stainless Steel  
• Option: 316 Stainless Steel.

### Non-Contact materials:

- 304 Stainless Steel.  
• Option: 316 Stainless Steel.

### Temperature Limits:

- Ambient 32°F-130°F (0°C-54°C). Material: 0°F to 250°F (-18°C -121°C).

### Enclosure:

- Fully enclosed, removable side and end panels gasketed and secured with captive type fasteners, open bottom.

### Belt:

- Endless two ply polyester carcass with BUNA-N, top cover, raised 5/16" (8 mm) flanges, rated for material temperature up to 250° F (121° C) FDA approved.

### Adjustable Bed Depth Gate:

- Standard.

### Accuracy (Combined Error):

- 0.25 to 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.

