The Thermo Scientific™ Ramsey™ Model 90-150 Low Capacity Weighbelt Feeder offers accurate weighfeeding of light materials at low feed rates. Its unique design and construction features provide a consistent flow of materials, offer increased sensitivity for more accurate weighing of the lightest materials, and permit quick and easy cleaning and maintenance. These features work together to augment the performance of your process and improve your bottom line.

Precise feeding of process materials is often critical to maintaining product quality. A feeder that weighs accurately and reliably can reduce material waste, help maintain blend consistency and increase profits.

We have well over 40 years of experience designing and manufacturing weighbelt feeders. Every feeder is designed to meet the specific needs of the application. We work closely with our customers to ensure that each system meets their expectations for performance and dependability.

The Ramsey Model 90-150 low capacity weighbelt feeder is designed for weighfeeding applications with low feed rates and light belt loading requirements. It accommodates flow rates as low as 54 kg (120 lb) per hour up to 22,680 kg (50,000 lb) per hour, and belt loadings of 3 kg/m (2 lb/ft) to 30 kg/m (20 lb/ft).
Theory of Operation
Material is fed onto the feeder through an inlet feed section equipped with a manually adjustable vertical slide gate to control material height. The scale carriage/ weighbridge assembly measures the gravitational force of the material and converts this force measurement into an electrical output signal proportional to belt loading.

A digital speed sensor continuously monitors the belt speed. The microprocessor-based electronics integrate the two signals to produce and display a true rate and a total weight fed. The electronics also provide an output signal for control and monitoring purposes.

Micro-Tech 9105 Weighbelt Feeder Controller
The Thermo Scientific Micro-Tech 9105 Weighbelt Feeder Controller incorporates the weighing integrator and PID/P.E.I.C. control logic into one device. The weighbelt feeder controller integrates the load cell signal from a scale/weighbridge and the input from a speed sensor to provide a true weight and a total weight fed. The electronics also provide output signals, improved communication and the ability to upload and download information via USB for greater control and blending purposes.

Features and Benefits
The Ramsey Model 90-150 Low Capacity Weighbelt Feeder, with its innovative design and unique features, was developed to meet the high standards and greater accuracy demands of today’s food, chemical and process industries.

- **Unique Head Pulley Configuration:**
  The chisel-shaped pulley configuration on the discharge end of the belt provides an even, consistent flow of difficult process materials off of the belt.

- **Tail Drive Arrangement:**
  This reduces carry-side belt tensions to provide greater sensitivity for more accurate weighing of the lightest materials.

Options
- Top covers
- Side covers
- Bottom covers
- Variable speed drives
- Flow/no-flow switches
- Plugged chute switches
- Class 1 and 2 rated units
- High temperature belts
- Shut-off/maintenance gates

Dual Load Cell Scale:
Dual load cells enable a higher degree of response to material weight variations.

Stainless Steel Construction:
Stainless steel provides improved corrosion resistance and washdown capabilities.
Ramsey Model 90-150 Low Capacity Weighbelt Feeder — Schematic Diagram

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Ramsey Model 90-150 Low Capacity Weighbelt Feeder — Variable Dimensions

<table>
<thead>
<tr>
<th>Tab No</th>
<th>A</th>
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## General Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Accuracy</td>
<td>±0.25% to 1% of set rate at 2 sigma, based on approved applications and test requirements</td>
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<tr>
<td>Belt Width</td>
<td>305 mm (12 in), 457 mm (18 in), 610 mm (24 in)</td>
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<tr>
<td>Feeder Length</td>
<td>914 mm (36 in) to 1,829 mm (72 in) centerline of inlet to centerline of discharge</td>
</tr>
<tr>
<td>Feed Rate</td>
<td>54.4 kg/hr to 22,680 kg/hr at 801 kg/m³ (120 lb/hr to 50,000 lb/hr at 50 lb/ft³) material</td>
</tr>
<tr>
<td>Belt Load</td>
<td>3 kg/m to 29.8 kg/m (2 lb/ft to 20 lb/ft)</td>
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<tr>
<td>Weigh Span</td>
<td>273 mm (10.75 in) typical</td>
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<tr>
<td>Belt</td>
<td>Endless polyester/monofilament carcass with FDA/USDA covers suitable for the application; Other belts available depending on application</td>
</tr>
<tr>
<td>Idlers</td>
<td>25.4 mm (1 in) diameter stainless steel with sealed bearings</td>
</tr>
<tr>
<td>Head Pulley</td>
<td>38.1 mm (1.5 in) diameter stainless steel with special chisel-shaped configuration</td>
</tr>
<tr>
<td>Speed Reducer</td>
<td>Motovario or equal shaft mount</td>
</tr>
<tr>
<td>Scale Weighbridge</td>
<td>Dual load cell, single-idler, pivotless full-floating weighbridge</td>
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<tr>
<td>Conveyor</td>
<td>Cantilevered frame and quick release take-up for easy belt removal; Stainless steel construction; Customer may specify belt removal on either the left or right side</td>
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<tr>
<td>Load Cell</td>
<td>Dual, low capacity bending beam transducers</td>
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<td>Load Cell Excitation</td>
<td>10 VAC/DC recommended, 20 VAC/DC maximum</td>
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<tr>
<td>Nonlinearity</td>
<td>0.02% rated output</td>
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<td>Repeatability</td>
<td>0.01% rated output</td>
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<tr>
<td>Hysteresis</td>
<td>0.02% rated output</td>
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</table>
| Temperature Sensitivity        | Zero: 0.0014% rated output/°C (0.0008% rated output/°F)  
                                  | Span: 0.0014% load/°C (0.0008% load/°F)           |

## Micro-Tech 9105 Weighbelt Feeder Controller

### Enclosure
- Field mount, NEMA-4X fiberglass, IP66, dust and watertight, 432 mm (17 in) x 360 mm (14 in) x 167 mm (6.6 in)  
  - Panel mount, chrome mid steel chassis, front panel IP65, DIN 43700, 306 mm (12 in) x 102mm (4 in) x 202 mm (7.9 in)

### Temperature
- Operating: -20ºC to +60ºC (-4ºF to +140ºF)  
  - Storage: -30ºC to +70ºC (-22ºF to +158ºF)

### Power Requirements
- Field mount 100-240 VAC, 50/60 Hz  
  - Panel mount 24 VDC +10%, -15% (user supplied), 24 VDC only, optional AC module available

### Display
- 77 mm x 58 mm viewable LCD graphic display with status indicator lights for easy reading, continuous backlit for ease of viewing indoors and outdoors, available menu languages include English, German, Italian and Spanish

### Load Cell Excitation
- 5 VDC +/-10%, 90 mA

### Inputs/Outputs
- Includes one dual analog input/output board; 2 analog inputs and 2 analog outputs selectable 0-20 or 4-20 mA

### Communication Protocols
- Standard serial interface RS-232C provides support for modem, RS-485, 2- and 4- wire multi-drop

### Ethernet
- Ethernet/IP and Modbus/TCP

### Ratings
- cCSAus, CE

### Pending Approvals
- Sil-2, Tick Mark, GOST and other ATEX classifications

## Ramsey 60-12 Digital Speed Sensor

### Type
- Digital, brushless

### Mounting
- Direct to 15.88 mm (0.625 in) diameter stub shaft on tail pulley, bend pulley, or return roll

### Housing
- Weather-tight, epoxy finish, cast aluminum

### Mounting Hardware
- Supplied with coupling, restraint arm and restraint spring

### Shipping Weight
- 3.6 kg (8 lb)