Automatic Belt Tracking and Conveyor Systems Equipment

Eckels-Bilt
Presentation Outline

1. Company overview
2. Our products
3. Conveyor belt tracking
4. Tracker models
5. What we need for design
6. What we need for spare parts
7. Summary
Company Overview

• Founded in 1968 by Stanley Eckels
• Built and patented the first automatic belt tracker in 1970
Company Overview

- Eckels-Bilt belt trackers are used in a variety of conditions

<table>
<thead>
<tr>
<th>Belt Material</th>
<th>Fabric, Mesh, Metal Band, Rubber, Teflon Coated Fiberglass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt Width</td>
<td>2 – 220 inches</td>
</tr>
<tr>
<td>Belt Thickness</td>
<td>0.006 – 1 inch</td>
</tr>
<tr>
<td>Conveyor Length</td>
<td>1 – 750 feet</td>
</tr>
<tr>
<td>Conveyor Speed</td>
<td>1 – 1500 feet per minute</td>
</tr>
<tr>
<td>Temperature</td>
<td>-20 °F – 600 °F</td>
</tr>
</tbody>
</table>
Company Overview

- Eckels-Bilt belt trackers are used in many industries

<table>
<thead>
<tr>
<th>Candy</th>
<th>Foam</th>
<th>Pharmaceutical</th>
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<tbody>
<tr>
<td>Baking</td>
<td>Metal Stamping</td>
<td>Mining</td>
</tr>
<tr>
<td>Snacks</td>
<td>Fiber Glass</td>
<td>Pet Food</td>
</tr>
<tr>
<td>Automobiles</td>
<td>Brick</td>
<td>Light Bulbs</td>
</tr>
<tr>
<td>Tire</td>
<td>Glass</td>
<td>Packaging</td>
</tr>
<tr>
<td>Wood and Paper</td>
<td>Cereal</td>
<td>Soap</td>
</tr>
<tr>
<td>Cement</td>
<td>Chemical</td>
<td>Produce</td>
</tr>
<tr>
<td>Plastics</td>
<td>Medical</td>
<td>Adhesives</td>
</tr>
</tbody>
</table>
Company Overview

• Why use Eckels-Bilt products?
  – Experts in belt tracking equipment
  – 40 years of conveyor equipment experience
  – Products are specifically designed for your application
  – Reliable
  – High quality
  – Easy to install
  – Ready to track the belt at startup
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Our Products

Tension Stations

Trackers

Rollers & Pulleys
Our Products

Full Conveyor Systems

Drive & Tail Sections
Conveyor Belt Tracking

• Why do you need an Eckels-Bilt belt tracker?
  – Out of square conveyor frame
  – Product build-up
  – Material expansion due to temperature change
  – Roller misalignment
  – Bad belt splice
Conveyor Belt Tracking

- Belt Tracking Methods
  - Crown Pulley
    - Does not track when product builds up
  - V-guides
    - Expensive pulleys
    - Does not track when product builds up
  - Side guides
    - Damages belt edge
  - Adjustable end pulley
    - Only tracks temporarily until belt is stretched
  - Automatic belt tracking
Conveyor Belt Tracking

How does it work?
- Belt edge sensor
- Shifts a set of rollers to steer the conveyor belt
- Belt goes towards the side of the roller it sees first
The belt is not pushing on the paddle and the valve is not activated; therefore the air cylinder is retracted and rollers are skewed to bring the belt towards the sensor paddle.
Rollers skewed left of neutral line (shown as the black line)

Belt is directed away from sensor paddle

Belt is touching the sensor and the air cylinder extended

The belt is pushing on the paddle so that the sensor valve is activated; therefore the air cylinder is extended and rollers are skewed in a position to direct the belt away from the sensor paddle.
Conveyor Belt Tracking

• Benefits to using Eckels-Bilt belt tracker
  – Increase the belt life
  – Reduce manpower and downtime
  – Decrease product loss
  – Extend conveyor belt life
Conveyor Belt Tracking

• Where do you put the belt tracker?

“The right tracker in the right location will always track” – Stanley Eckels

– 1-3 belt widths before the infeed roller on the return side of the belt
1st Location

Discharge (Head)  Product Direction  Infeed (Tail)

Tracker

1-3 Belt Widths
2nd Location

Use if:
- Conveyor is over 80' long

18'-25'

Product Direction

Discharge (Head)

Tracker

Infeed (Tail)

1-3 Belt Widths
3rd Location

Use if:
- Conveyor is over 80’ long
- Product delivery tracker will not work
- Must have dead nose bar at discharge end
  - Reverse Spiral

Must be a dead roller

Tracker

Product Direction

Discharge

Infeed (Tail)

1-3 Belt Widths
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Tracker Models

• Types of Eckels-Bilt belt trackers
  – Three rollers
  – Two rollers
  – One rollers
  – Product Delivery
  – Wire Mesh (Compound Weave)
  – Steel Band (Solid Metal Sheet)
Tracker Models

Three Roll

Two Roll

Single Roll
Tracker Models

• Light Duty
  – Widths up to 48 inches
  – Low belt tensions

• Standard Duty
  – Widths up to 70 inches
  – Normal belt tensions

• Heavy Duty
  – Wide or thick belts
  – High belt tensions
  – Harsh environments

• Custom Design
Tracker Models

- Product Delivery Tracker
  - Conveyors over 80’ long
Tracker Models

• Wire Mesh Belt Trackers
  – Balance and compound weave belts on ovens, dryers, and furnaces
Tracker Models

- Oven Band Tracker
  - 4 roll tracker
  - White nitrile food grade lagging on roller
  - Clamps down on belt to provide traction
  - Mounted 18’-25’ before infeed drum
Tracker Models

• Power Options
  – Pneumatically Operated
    • Most popular operation method
    • Durable
    • Lowest cost to buy and replace
  – Electrically Operated
    • DE-Tracker
      – Used where air is not available
    • E-tracker
      – Used in applications where tight tracking and feedback are wanted
Tracker Models

• *DE-Tracker*
  – Designed for environments with no access to compressed air
  – Ideal for portable conveyors
Tracker Models

• *E-Tracker*
  – View tracker performance and make adjustments from anywhere in the world
  – Tighter tracking for high speeds
  – Small actuator movements for longer tracker life
  – Receive Email/Text notifications on tracker performance
e-tracker
e-tracker

Belt Position: Last -0.04in, Avg -0.03in, Min -0.20in, Max 0.08in
Actuator Position: Last 0.14in, Avg 0.14in, Min 0.11in, Max 0.15in
Reset Stats: Last Reset: 11:44 AM 03-11-13
Actuator Miles: 0
Hours: 136
Tracker Models

- 3 levels of wash down
  1. Light spray or hand wash
  2. Heavy spray (water only)
  3. High pressure caustic spray /sanitation areas.

- USDA

- Price increases with level of wash down
<table>
<thead>
<tr>
<th>Wash Down Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal roller bearing with dead axle</strong></td>
</tr>
<tr>
<td>Used for light spray or hand wash applications</td>
</tr>
</tbody>
</table>

| **Sealed rollers with live axle with mounted bearings** |
| Used for heavy spray (water only) |

| **Aluminum square body cylinder** |

| **Stainless steel round body cylinder** |
| Used for heavy caustic spray/sanitation areas |
Wash Down Trackers

**2007HDIJ**
- Aluminum, square body air cylinder
- Internal bearings (ER-16) with through axle
- All SS rollers and plates

**2007EXIJ**
- Aluminum, square body air cylinder
- SS mounted bearings
- Sealed journaled rollers
- All SS rollers and plates

**2007EXIJ-WD**
- SS, round body air cylinder
- SS mounted bearings
- Sealed journaled rollers
- All SS rollers and plates
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What We Need For Design

• Dimensioned sketches of the conveyor
• Pictures
• Required information sheet
What We Need For Design

• Dimensioned sketches of the conveyor
  – Front view with:
    • Length of conveyor
    • Location and size of major rollers
    • Drive location
Front View Drawing

3 Line Metal Detector

Note:
Discharge Reciprocates 13.5"

1/2" Live Nosc

12"

2"

5"

2"

43" 20"

107

20'-8"

90½ 108½ 12½

3" 1

2.5" Dia

53" Wide Belt
55½" Between Frame
55½" Outside Frame
End View

- Dimensioned cross section
- Frame width
- Frame construction
What We Need For Design

• Pictures
  – Overall picture of the conveyor
  – Focused on location where the tracker will be mounted
Pictures
Required Information

> **Drawings**
  - CAD Drawings (SolidWorks/.stp or Autocad 2006 or earlier .dwg format)
  - Or
  - Dimensioned Sketch of Belt Path Showing the Following Components
    - Length of conveyor
    - Drive location
    - Location and size of major rollers
    - End views or cross sections showing frame width/construction

> **Application Information**
  - **Conveyor Information**
    - Product being conveyed ______________
    - Conveyor length ______________
    - Infeed End (Tail): Live nose bar □ Dead nose bar □ Roller □
    - Discharge End (Head): Live nose bar □ Dead nose bar □ Roller □
    - Slider bed □ Roller bed □ Troughed □
    - Bi-directional □
  - **Belt**
    - Type of belt ______________
    - Splice ______________
    - Belt width ______________
    - Thickness ______________
    - Speed ______________
  - **Environment**
    - Temperature of carrying surface of belt ______________
    - Temperature of return surface of belt ______________
    - Wet □ Dry □
    - Cleaning practices: Light wash □ Heavy wash □ Chemical wash □ N/A □
    - USDA compliant □ FDA compliant □
    - Indoor □ Outdoor □
    - Corrosive □

> **Additional Comments**
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What We Need For Spare Parts

- Serial number
- If possible, model number
- Part(s) needed

Eckels-Bilt, Inc.
800-343-9020
www.eckelsbilt.com
S/N 009653
## Parts

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>MANUFACTURER</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>QTY</th>
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<tbody>
<tr>
<td>1</td>
<td>ECKELS-BILT</td>
<td>2007EXIJBLT</td>
<td>BASE PLATE</td>
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<td>2</td>
<td>ITPCJ</td>
<td>SS555LFE35-15</td>
<td>STAINLESS STEEL FLANGE BEARING WITH SET SCREW (FOR CYLINDER SIDE)</td>
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<tr>
<td>3</td>
<td>SMC</td>
<td>NCA7L-GEO020-0200</td>
<td>2”N2” AIR CYLINDER WITH ROD CLEVIS &amp; FLOW CONTROL FITTINGS</td>
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<td>4</td>
<td>ECKELS-BILT</td>
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<td>ECKELS-BILT</td>
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<td>UMHW SLIDE</td>
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<td>8</td>
<td>ECKELS-BILT</td>
<td>2007EXIJSCREW</td>
<td>UMHW SLIDE COVER</td>
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<td>9</td>
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<td>STAINLESS STEEL FLANGE BEARING WITH ECCENTRIC LOCKING COLLAR (FOR STATIONARY SIDE)</td>
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<tr>
<td>10</td>
<td>ECKELS-BILT</td>
<td>ROLL603000NX</td>
<td>ROLLER ASSEMBLY</td>
<td>3</td>
</tr>
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Summary

• Solve your conveying problems with Eckels-Bilt products
  – Know it’s the right equipment for the application
  – Install it easily
  – Know it will work right away
  – Trust it will continue to perform as designed