About Falk PLI

Founded in 1995 and is a privately held engineering firm with offices located in Northwest Indiana, Southern Alabama and Western Pennsylvania.

Performs the majority of our services in industrial applications and commercial construction.

Projects across the United States, Canada, Europe and the Gulf of Mexico.

Utilizes innovative technology to drive process improvements and reduce costs.
Engineering Services

**Civil Engineering**
- Site Design
- Land Surveying
- Roadway Design
- Construction Layout
- Soils and Materials Testing

**Industrial**
- 3D Modeling
- Clash Detection
- Precision Alignment
- Reverse Engineering
- Maintenance & Reliability
Sample IDOT Report for goal #1, identify mechanical problem

- South "Best-Fit" Centerpoint Held as 0.000" for Alignment & Elevation
- Gear Travel
  - Skew 0.046in/ft
  - 0.289'' High
  - 0.106'' Low
- Skew 0.009in/ft
  - 0.514'' Low
  - 0.328'' Low

Gear Line
- 396.574''

North
Sample IDOT Report for goal #2, assisting in correction
Laser Technologies

Laser Scanner

Laser Tracker
# Laser Technologies

<table>
<thead>
<tr>
<th></th>
<th>Laser Scanners</th>
<th>Laser Trackers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup Time</td>
<td>5-10 min / setup</td>
<td>60 min or 15 min</td>
</tr>
<tr>
<td>Data Collection</td>
<td>1 million shots/sec</td>
<td>1,000 shots/sec</td>
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<tr>
<td>Accuracy</td>
<td>2mm (0.080”)</td>
<td>0.025 mm (0.001”)</td>
</tr>
<tr>
<td>Primary Use</td>
<td>Large Area</td>
<td>Single Feature</td>
</tr>
</tbody>
</table>

![Image of bridge with laser scanning equipment](image_url)
Methodology for Bridge Projects

- Identify mechanical problems & prioritize projects
- Assist in alignment and adjustments
- Utilize information for ongoing monitoring of bridge condition
Methodology for Bridge Projects
Onsite Machining Support

Drive Side

Operator Side

Plate Travel
Onsite Machining Support
Bridge as-found Condition
Bridge as-found Condition

SOUTH RACK/PINTLES ALIGNMENT
*Top View

NORTH RACK/PINTLES ALIGNMENT
*Top View

SOUTH RACK/PINTLES ELEVATION
*View Looking North

NORTH RACK/PINTLES ELEVATION
*View Looking North

Elevations are with respect to highest measured elevation on Rack & Pintles.
Bridge as-found Condition

GEAR CROSS SECTIONS

South "best-fit" Centerpoint held as 0.000" for alignment & elevation

Geared line

Gear High Point during travel

Gear travel

"Best Fit" Radius Values

Plan Radius = 216.054"

North
Goals & Objectives of IDOT Bridge Projects

- Identify mechanical problems & prioritize projects
- Assist in alignment and adjustments
- Utilize information for ongoing monitoring of bridge condition

Identify → Correct → Monitor
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