Tire Surface Inspection
For Tire Surface Inspection, three laser profile sensors are used to detect bulges and depressions in tire production. They are mounted on a solid and accurate transport system. Laser sensors provide single/multi track measurement, in case of spot laser sensor or whole sidewall is scanned by sheet-of-light laser providing tire profile in every sample instance. The Tire Surface Inspection monitors the signals from sensors, eliminates lettering, performs filtering and detects bulges and dents, calculates radial and lateral runout, performs harmonic analysis, checks tire dimensions, defect quality classification, according to the customer specification.

**Features**

- Non-contact Measurement
- Laser-Line Triangulation Technology
- True 3D Defect Elimination
- Precise Lettering Elimination
- Complete Tire Scan
- Automatic Inspection Range Selection
- High Laser Operating Distance
- Extended Connectivity
- Powerful Visualization Tools
- Standalone Application
- Adaptation to different TU machines

**2 Axis positioning system**

- Robust transport mechanism
- Brushless DC servodrives for precise positioning (16bit resolution)
- 3 x Profile Sensors (2 x 2D + 1 x P)
- Laser rate 256 kHz
- PC compatible Real Time Control System-Connectivity via TCP/IP, ADS, Profibus, analog, digital I/O

**Technical data**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tire Width Min.*</td>
<td>100 mm</td>
</tr>
<tr>
<td>Tire Width Max.*</td>
<td>350 mm</td>
</tr>
<tr>
<td>Measurement Tracks</td>
<td>256/profile</td>
</tr>
<tr>
<td>Measuring Profiles</td>
<td>1000/s</td>
</tr>
<tr>
<td>Measurement Width</td>
<td>40 mm</td>
</tr>
<tr>
<td>Measurement Time</td>
<td>1 sec. (60 rpm)</td>
</tr>
<tr>
<td>Calculating Time</td>
<td>~ 2 sec.</td>
</tr>
<tr>
<td>Repeatability</td>
<td>&lt; 0.05 mm</td>
</tr>
</tbody>
</table>

*Depends on mechanical configuration of transport mechanism
Subject to measurement

Bulge and Dent Detection
- Amplitudes and Angles
- Top and Bottom Side

Radial and Lateral Runout
- Average, Peak-to-peak Values
- Harmonics

Tire Dimensions
- Tire Radius (mean, min., max., angle)
- Tire Width

Defect classification (feedback)

Tread monitoring
Data Preprocessing
Dropout filtering
Profile compensation
Revolution identification

Bulge and Dent detection

Lettering elimination:
The unique software allows to differentiate between real defects and bumps caused by letters.