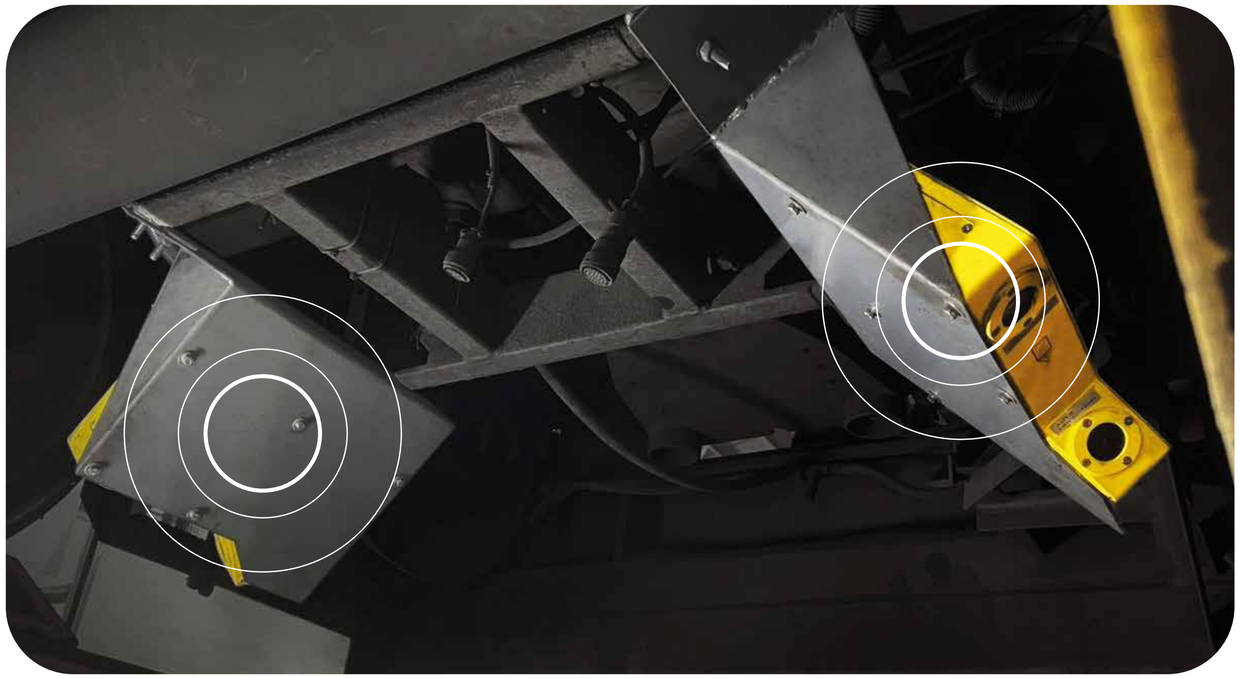
RAIL PROFILE

High-Precision Rail Profile Scan for Inspection and Grinding Operations

ADTSOLUTION



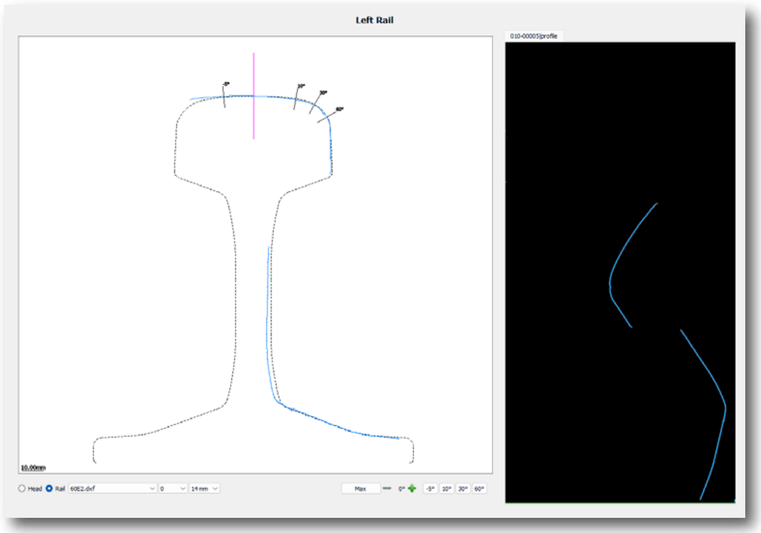
The **Rail Profile Measurement System** is an optical diagnostic solution for **high-precision, non-contact rail profile detection.**

Easily **mountable on virtually any type of vehicle** and orientable toward the target, it is suitable for both **rail wear inspections**, **integration on grinding machines or third rail detection and measuring**.

Laser triangulation–based vision system

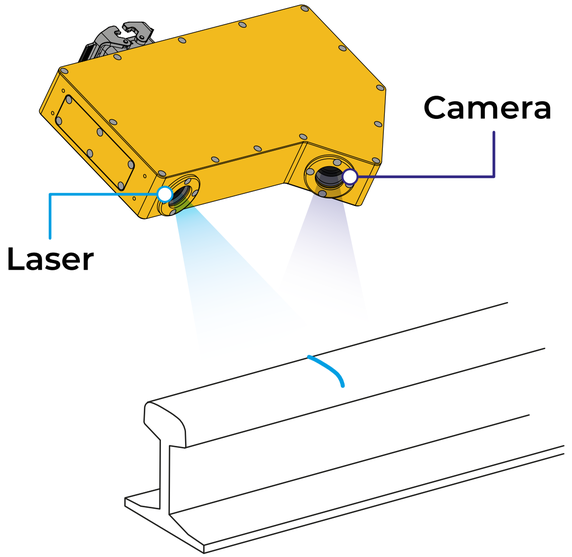
Metric correlation via connection with the vehicle's encoder

Operator-friendly interface with real-time visual feedback



Performance	
Max Sampling frequency	**Up to 350 fps**
Accuracy	**± 0,1 mm**
Laser Class	**3B, 450 nm** **+ 3B, 405 nm** (FRP only)
Operating temperature	**-20°C / + 60°C** **Optional extension to EN 50155**
Measuring Speed	**Max operational speed**

How it works

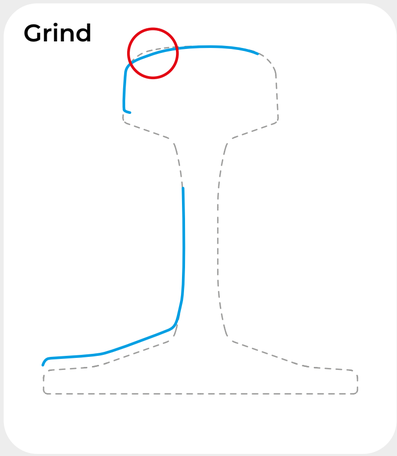


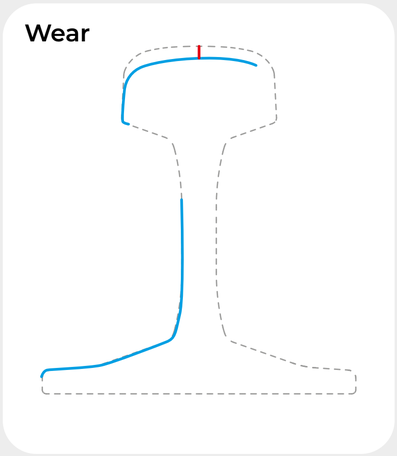
1 The laser projects a line onto the rail, while the camera captures the profile along the entire track.

Raw profile

2 The software acquires the RAW image and isolates the rail profile.

Elaborated profile

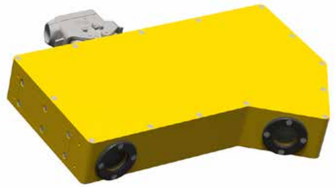




3 The RAW profile is processed and compared to the reference profile:

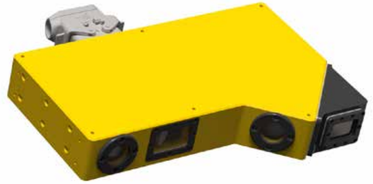
- The **grind** method, where the acquire profile is aligned on the upper and inner part of the rail head, optimizes material removal in the areas targeted for grinding.
- The **wear** method, which aligns the profile on the web and foot, enables accurate rail wear analysis.

Models and Configurations



RP - Rail Profile Measurement System

High-precision device for rail profile detection, featuring laser and camera technology; ideal for wear assessment and geometry monitoring.



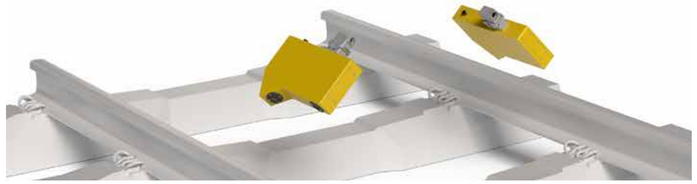
RP-V - Rail Profile Vision add-on

Rail profile device with add-on camera and lighting module for visual inspection and rail surface image capture.

3RD RAIL

Measures height and stagger of third rail.

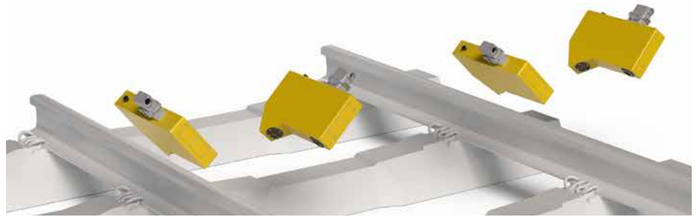
Rail Profile Configuration



Devices:
- **2 x RP** (or RP-V)

Application:
- **Grinding operations**
- **Inner profile inspection**
- **Track monitoring**

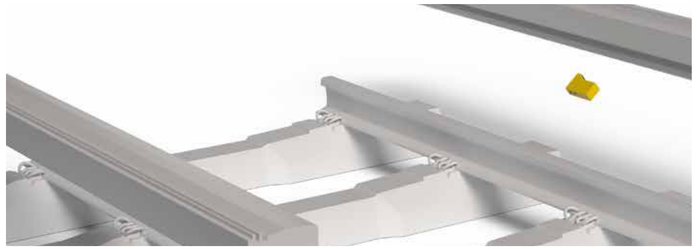
Full Rail Profile Configuration



Devices:
- **4 x RP** (or RP-V)

Application:
- **Grinding operations**
- **Full profile inspection**
- **Track monitoring**

Third Rail Profile Configuration



Devices:
- **2 x 3RD RAIL**

Application:
- **Third Rail detection and measuring**

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