vossloh
enabling green mobility

Universally deployable

Flange rails and grooved rails

Versatile deployment (varying track gauges)

Suitable for tunnels

Smart Maintenance: condition-based and predictive maintenance

Technical Datasheet

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Smart Maintenance – the unique, fully-integrated solution

Track availability requires considerable increases in efficiency in rail and switch maintenance made possible by intelligent, condition-based and anticipatory solutions. Track sensors mounted on maintenance machines record the track's condition collecting a wide range of different data. The data is analyzed in real time, which improves understanding of the track's condition and generates specific maintenance recommendations.
Only Vossloh offers a complete solution for the entire value creation chain – from the hardware, data collection and maintenance recommendations all the way to carrying out the maintenance.

Benefits

/ One-stop shop for status data collection, analysis and maintenance
/ Measuring equipment can be integrated into all Vossloh maintenance vehicles
/ Data processed and made available immediately in the Cloud
/ Accessible on every mobile device
/ Optimizes maintenance with a condition-based, predictive approach
/ Systematic execution of works

Applications

/ Suitable for mainline tracks and light rail (tramways, metro systems, industrial railways and standard-gauge lines)
/ Recording the condition of all tracks
/ Suitable for flange rails and grooved rails
/ Suitable for slab-track and ballasted track lines

Real-time data processing allows the procedure to be monitored continuously

Video

Laser Rail Scanning
Technical Data

Device type

System for measuring the transverse and longitudinal profiles of rails and the track gauge while rail maintenance machines traverse the track

Inspection basis

Non-contact measuring system for rail geometry using laser sensors:

- Longitudinal undulations
- Transverse profile (rail head, groove (optional), wear and track gauge)

Operating parameters

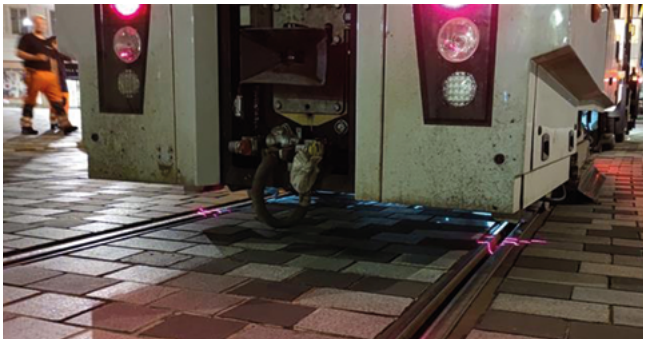
Direction of operation	In both directions
Maximum speed	60 km/h
Rail type	Free-standing flange rails; recessed or free-standing grooved rails (optional); all track categories
Curve radii	≥ 25 m
Clearance gauge	Same as the maintenance machine
Ambient temperature	In operation: 0 °C to + 40 °C Standby: - 25 °C to + 50 °C
Humidity	Max. 85 %
Altitude	< 2.000 m
Rain, storm, dust	Measurements taken during rainfall, storms or in dusty conditions may be interrupted or limited in scope
Snow	Snowfall or snow on the track can damage the optical measuring components

Features

Communication	WLAN, LTE (4G)
Localization	**GPS/Galileo:** Accurate to 5 m **Position encoder:** Accurate to ± 0,1 mm/m
Longitudinal profile sensor	**1 measurement/mm:** Accurate to ± 8 µm
Transverse profile sensor	**1 measurement/mm:** Rail head: Accurate to ± 0,1 mm Groove, groove rail head: Accurate to ± 0,3 mm Track gauge: Accurate to ± 1 mm
Software	Measuring software LRS-control LRS-insight

Other features

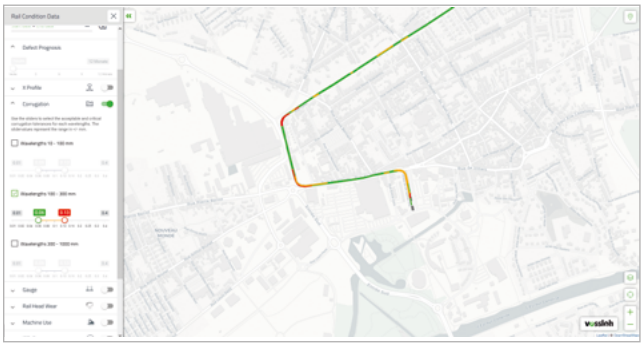
- 1 operator for the measuring technology
- Wireless operation



mapl-e
Technical data

mapl-e: maintenance planning easy

- Web-app / Cloud-based / all end-user devices / accessible everywhere with Intuitive user interface
- Visualization and analysis of the rail condition
- Optimization and support for rail maintenance



Measured values

- Cross profile:
  - Actual/target discrepancy
  - Wear
  - Groove depth
- Track gauge
- Longitudinal profile in accordance with EN 13231-2:2020
- Other measurements possible on request

Data import

- Automatic data import from LRS
- Automatic track detection
- Data pre-processed in the Cloud

Visualization

- Flexible and intuitive status overview according to user criteria
- Detailed view
- Data history and trend analysis

Maintenance planning

- Maintenance simulation (work required, duration, time, machines, settings) depending on the deployment options such as track closures, direction of travel, nightly suspension of operations, etc.
- Shift planning

Maintenance execution

- Export of orders and machine requirements

Smart Maintenance in Milan

With the aim of facilitating predictive rail maintenance and thus maximizing track availability, Vossloh's Smart Maintenance approach simplifies and speeds up each of the maintenance processes – from recording the track's condition to planning and carrying out rail maintenance works.

Since 2021, the local network operator Azienda Trasporti Milanesi (ATM) has been letting Vossloh test the laser sensors on the **HSG-city smart** on its tramway and metro network in order to step up the further development of the immediate analysis and display of data as a specific recommended action in the new **mapl-e** platform.

Vossloh and ATM are using the knowledge gained to plan a joint preventive rail maintenance strategy.

Video

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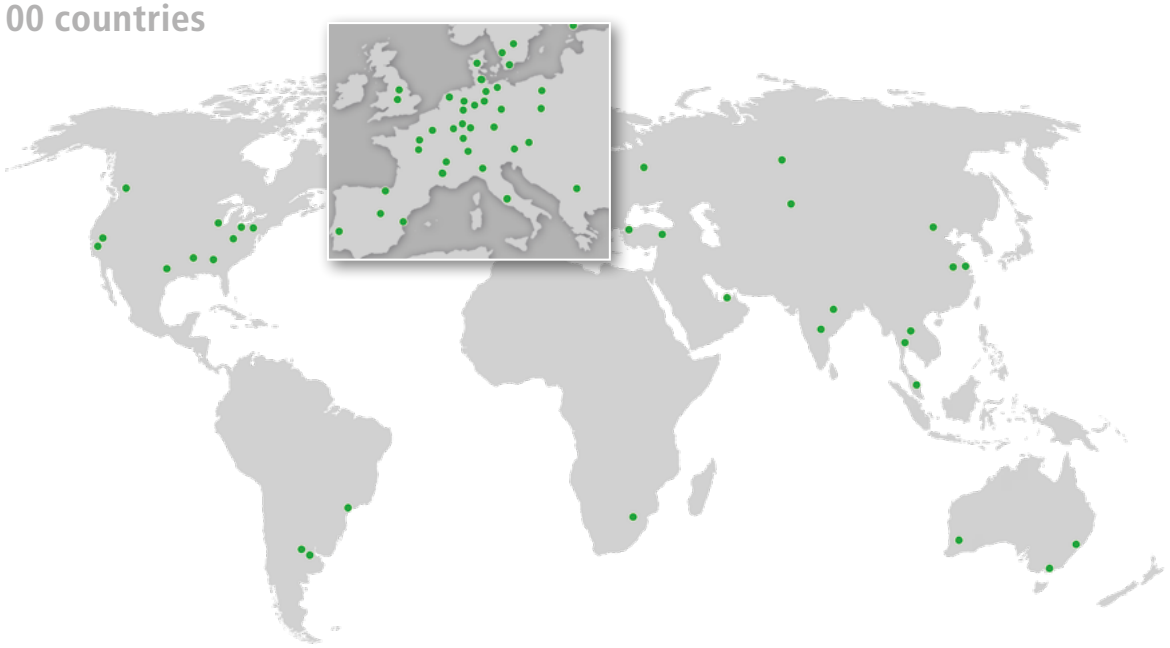
Global expertise in over 100 countries



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