A152

Laser scanners

scanCONTROL

Measurement of rail track wear

Guaranteeing the safety and stability of rail tracks when transporting passengers or goods is critical. Increased loading of the rail network and higher speeds of modern trains lead to higher stressing of the rail tracks. The condition of the tracks must be inspected regularly in order to prevent costly incidents.

The wear of the rail head is an important parameter in the reliable assessment of the condition of the tracks. If wear is too high, this could potentially lead to train derailments. scanCONTROL 2800 laser profile scanners measure the condition of the rail heads even at high speeds.

Two scanCONTROL sensors are required to measure the entire rail head profile, i.e. a total of four synchronously operated scanners are mounted to one measurement wagon. Profile data is recorded at up to 100 km/h, which is continuously compared with target profiles in the customer's evaluation software. Deviations from a defined tolerance limit are marked on a map using GPS data. This information enables precise, well-directed repair measures to be carried out.

Advantages

- High measurement rates up to 2000Hz
- High laser power (50mW, class 3B) for short exposure times with dark surfaces
- Higher accuracy than visual inspection

Requirements for the measurement system

- Measuring range X=125mm
- Measuring range Z=50mm
- Offset distance 230mm

Ambient conditions

- Temperature: -20 to +80 °C (protection housing provided by the customer with heating and cooling for negative temperatures)
- Different weather conditions (strong solar irradiation or snow)
- Vibrations (installation on the undercarriage of the wagon)

System design

- Four scanCONTROL 2800-100(205) sensors per measurement wagon
- Customer protection housing for heating/cooling
- Customer evaluation software