



Rail measurement in high speed grinding

The Vossloh company is a global leader in the field of rail technology. One of its business units focuses on maintaining the value of the infrastructure, which also includes the maintenance of rails. For this purpose, Vossloh uses, among other things, its high-speed grinding process, in which rails are ground at high speed. Precise measurement of the profiles is of great importance during the process. For these measurements, Vossloh relies on the support of sensors from Micro-Epsilon. For the measurement task, path-dependent recording with several sensors is necessary. With this technology, the Micro-Epsilon sensors scanCONTROL LLT2900 and optoNCDT ILD2300 are integrated into the grinding trains as on-board measurement technology. These high-speed grinding trains work at speeds of up to 80 km / h. Meanwhile, the sensors measure the rail cross and longitudinal profiles, groove geometry and track width.

The measured values determined are preprocessed during the measurement. For this purpose, filters or an outlier removal are used, for example. The profiles can also be assembled or resampled. The data obtained provide precise information about the condition of the rail and are passed on to the grinding trains during operation. This means that the grinding program can be adapted on the basis of the measurement results. Moreover, feedback is given on the grinding quality. The scanCONTROL 29xx series impresses with its compact size and low weight for this measurement task. Due to the high profile resolution, the robust sensors are particularly suitable for dynamic applications where high precision and reliable measurements are required.

Requirements for the measurement system

- Measurements at speeds of up to 80 km / h
- Day and night operation
- Non-contact measurement as preferable
- Measuring range 100 mm
- Resolution 0.06 mm (transverse profile), 0.005 mm (longitudinal profile)
- Measuring object: steel, surface from rusty to bare

Ambient conditions

- Outdoors
- All weather conditions
- Sawdust

System design

- scanCONTROL LLT 2900-100 (up to 3 sensors)
- ILD 2300-10 / LL
- IPC with PCI card
- Path information through rotary encoder on the wheel and GNSS

Advantages

- Knowledge of the rail condition while processing
- Adaptation of the grinding program based on the measurement results
- Feedback about the grinding quality



"With laser sensors from Micro-Epsilon, we determine, among other things, rail transverse and longitudinal profiles, groove geometries and track gauges in day and night operation. Measurements are made at speeds of up to 80 km / h and under adverse conditions with grinding dust and vibrations."

Vossloh Rail Services GmbH has been using the robust and precise sensors from Micro-Epsilon for several years. We particularly appreciate the technical support in our long-term cooperation as well as the good support of the office and field service."

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