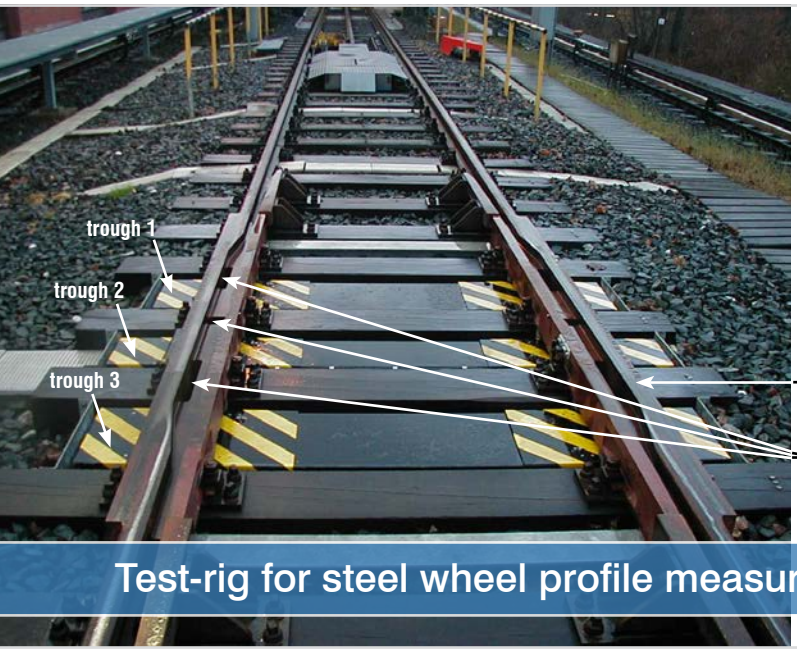
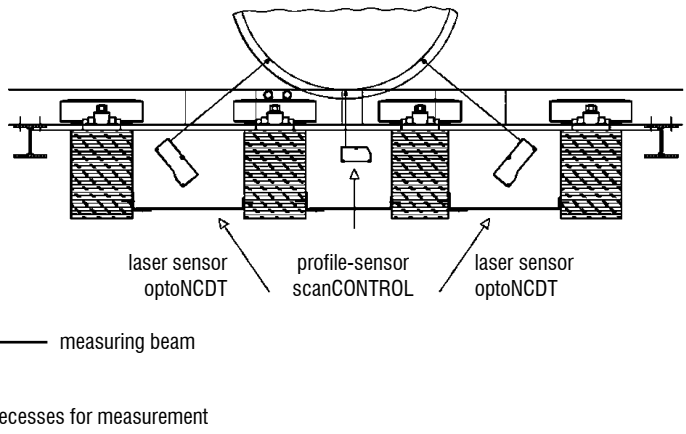
A154

Laser scanners
scanCONTROL





Test-rig for steel wheel profile measurement

The wear on the wheels due to the high mileage affects the safety and the ride characteristics of the rail vehicles and generates high maintenance costs.A novel test-rig setup, that is accommodated in the track bed, measures the profile sets of complete trains, has been developed for the inspection of rail track wheels. For the measurement, point and line laser-based optical devices are employed. Through the use of a modern wheel profile measurement device for acquiring and documenting the profile data, the costs in terms of time and labour can be significantly reduced. The complete measurement equipment is housed in three troughs embedded in the track bed transversely to the direction of travel. In each of the troughs 1 and 3 are two optoNCDT 1810 point lasers for acquiring the wheel diameter and position. The trough 2 accommodates two scanCONTROL 2800 profile-lasers for acquiring the wheel profile. In addition, two other sensors are used to acquire the direction of travel and speed of the rail vehicle.

To facilitate a measurement the rails have half-sided recesses, which are necessary that the laser can beam through the track onto the wheel. To clarify this configuration, look at the sketch and the picture above.

Using application-specific software, the profile data, which form the basis for determining the date for reprofiling, can be inspected to find out if limits have been exceeded.

Advantages
- Reduction in the workshop reserves
- Easier disposition of rail vehicles
- Determination of the reprofiling date

Requirements for the measurement system
- Accuracy: 0.1mm
- Measurement on moving train

Ambient conditions
- Temperature: -25 to 50 °C
- Outdoor system; subject to effects of weather

System design
- Four optoNCDT 1810-50 devices for positioning
- Two scanCONTROL 2800-100 devices for profile detection
- Customer software and database