

Monitoring wheel profiles on Rail Vehicles

Mobile laser system for measuring wheel profiles

- fast, high precision measurement
- evaluation and instant diagnosis of the wheel profile condition
- easy measurements on installed wheel sets
- exclusion of subjective measuring and reading errors
- recording and qualitative assessment of the whole wheel profile, not restricted to just a few measuring points
- immediate determination and display of wear characteristic dimensions
- light, portable and easy to use
- wear-free design and end-user calibratable

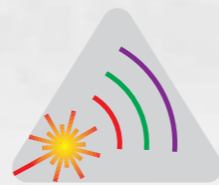
You will find the addresses of our numerous foreign representatives in the Internet.

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Requirements of wheel profile measurement

Wheels – probably one of the most important units of all rail vehicles, are exposed to high mechanical stress and therefore have a decisive influence on the running behaviour and driving comfort of individual vehicle types. The wheel-rail system, which is subject to extensive demands in service, needs regular inspection to ensure operational reliability. Friction-related mechanical wear on wheel sets is also a cost factor that must not be ignored. Therefore inspection measurements, which at the moment are still done largely by manual methods, must be made at regular intervals. Manual methods are very subjective and reading errors cannot be ruled out. Based on these criteria the mobile laser-based wheel profile measuring system offers essential advantages for measuring profiles on stationary wheels.



Mobile wheel profile measuring instrument

The compact laser-based measuring instrument ensures that the profile data of wheels are selected and measured reliably. The measuring system is battery-operated with a data logger as an input and memory medium. The assignment of the nominal and maximum dimensions for the respective profile type and its monitoring is fully database-supported. Measurements on the wheel and assessment of wear can be performed quickly and easily.



Cost factor wheel profile wear

Long term analysis of the wear dimensions and profile inspections offer assistance in determining low-wear profiles. Optimum operating life of the vehicles (before re-profiling) can be determined based on wear behaviour.



Measuring principle and system concept

The profile geometry is scanned by a non-contact, battery powered laser system. The contour data of the wheel profile is immediately available for operator review in the depot or workshop. Further evaluations are possible within the PC software after download from the hand-held logger.

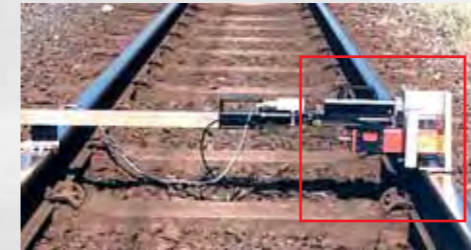
Run-out measurement and flat area detection (optional)

Wheel run-out can also be measured when used in conjunction with a mobile wheel set turning device of the Windhoff RSD type. The lifting device allows the axle to be raised and turned whilst in-situ. The laser wheel profile measuring system can be attached to the axle rotating device by means of a special bracket. The run-out deviation is determined and logged by continuous laser measurement in the rotational plane during a revolution of the wheel. The continuous recording of the measurement also enables detection of flat-spot areas.



Measurement of rail profiles (optional)

Adapting the mobile wheel profile measuring instrument to a track gauge bar allows measurement of rail profiles. The rail head profile can be evaluated with the "Rail Measurement" software option.



PC software

The database-supported software enables further evaluation of the profile data measured on the vehicle. At the same time it enables management of all vehicles and wheel sets. In addition to the basic standard parameters of the profile the complete profile curve is available in graphical form for further wear investigations. The measurement procedure can be displayed graphically with the run-out measurement option.

The following standard evaluations are possible:

- wheel flange height, thickness and qR dimension
- wheel width
- track gauge calculation
- wear history
- limit comparison
- nominal and actual profile comparison
- profile co-ordinates of the measurement

The following options are also available:

- measurement of wheel diameter
- monitoring of diameter differences of the wheels of the whole vehicle, the drives and bogies
- interfaces for data transfer with central EDP systems
- hollow run

