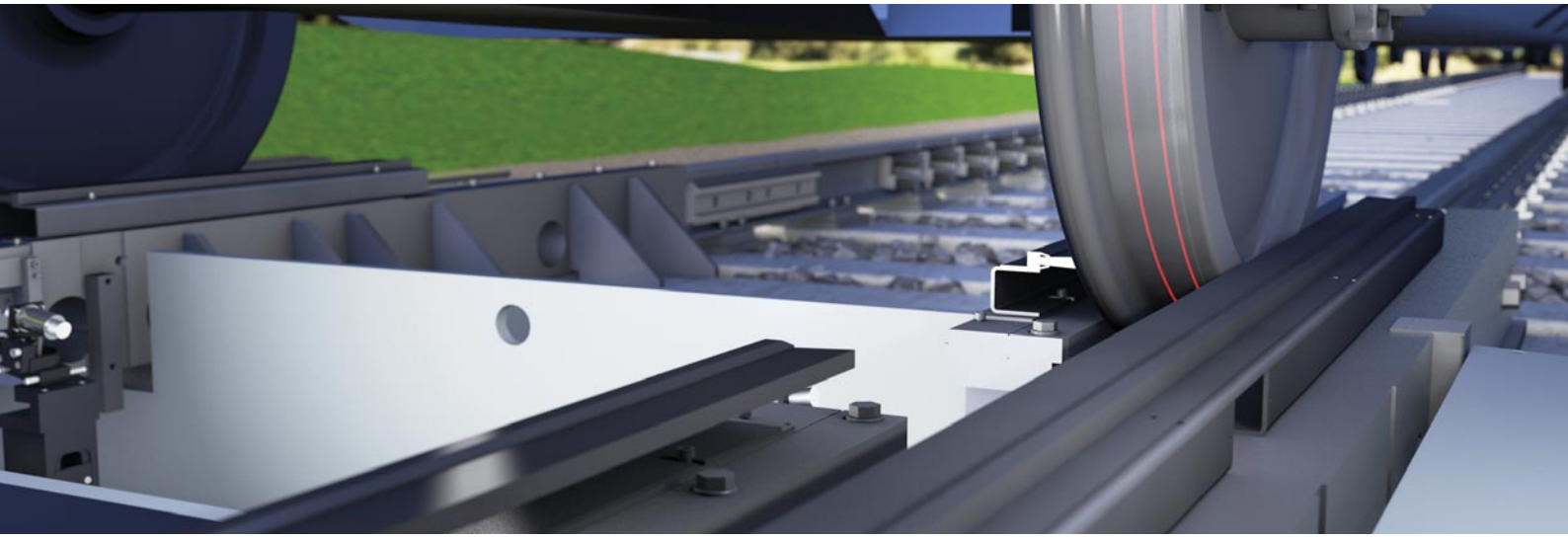
Diagnostic System for Wheelsets
ARGUS® II



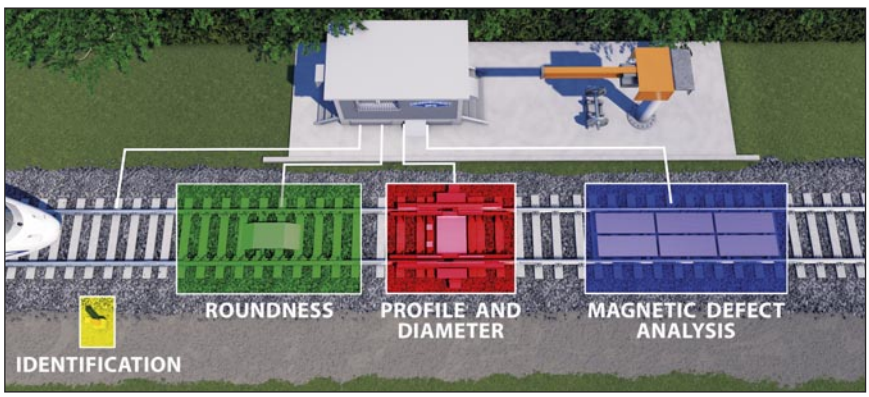
Extended Fields of Application and Potential Uses

ARGUS®II is the latest development of the ARGUS inspection and testing system. For the first time, in addition to the diagnosis of wheelsets for rail-mounted standard gauge vehicles, ARGUS now allows the diagnosis of tram wheelsets in drive-through operation. Vehicles are identified and measured automatically as they enter the measuring section. All relevant measurement data is archived in a database.

This enables the operator to monitor their fleet of wheelsets on a continuous basis without personnel costs or loss of time. Through the collected measurements, it is possible to determine a wear characteristic which should serve as the foundation for a maintenance program that not only is economical, but also environmentally friendly and safety-conscious.

The basic version of the system includes the IDENTIFICATION, DIAMETER and PROFILE modules, which can be used both for tram and standard gauge wheelsets. A system for standard gauge tracks can be optionally extended with the ROUNDNESS and Magnetic Material Testing (MDA) modules.

The respective modules record the measurement data listed below with the specified measuring uncertainties.



Benefits:

- Fully automated wheelset diagnosis without personnel expenditure, round the clock
- Archiving of all measurement data in one database
- Precise and easy-to-access information on the state of all wheelsets, along with their history and a wear forecast from the wheelset database
- Short installation times, with the result that the track is quickly available
- Basis for improved workshop organisation and logistical preparation
- Increase in operational reliability and punctuality also without operating reserves, as all of the required actions on the wheelsets are known before the vehicles arrive.
- Machine suitability initially sampled according to VDI/VDE/DQG2618 sheet 27, VDA 5/GUM by accredited calibration laboratory

Module	Task	Displayed result	Measuring uncertainty (K=1)	Measuring uncertainty (K=2)
Base unit	Monitoring of the measuring modules Control of the measurement Transfer of the measurement data to the database	Number of axles used in the measurement in total Status and number of axes per module System status, outside temperature Flow trace		
Identification	Vehicle / train identification	Identity via ID tags		
Concentricity, flat spots	Tactile measurement of the radial runout, depth of the flat spots	Size of the radial runout depth of the flat spots	Ra: (±) 0.075 mm Pfh: (±) 0.1 mm	Ra: (±) 0.15 mm Pfh: (±) 0.2 mm
Diameter	Optical determination of the measuring circle diameter Difference in diameter on the right/left	Actual measuring circle diameter Actual difference of the measuring circle diameter	dM: (±) 0.75 mm	dM: (±) 1.5 mm
Profile	Optical measurement of the wheel profiles of standard gauge trains and trams	Flange height, flange thickness, transverse dimension, wheel gauge, wheel distance	Sd: (±) 0.1 mm Sh: (±) 0.125 mm Qr: (±) 0.2 mm SR: (±) 0.2 mm AR: (±) 0.2 mm	Sd: (±) 0.2 mm Sh: (±) 0.25 mm Qr: (±) 0.4 mm SR: (±) 0.4 mm AR: (±) 0.4 mm
MDA	Detection of material or other defects in the wheelset and on the running surface. Evaluation of the changes to the magnetic flow. Immediate classification of the wheelset after the drive-through.	Representation of defects		

Current Advancement and News about the ARGUS® II TRAM

Profile and diameter measurement for trams

After 20 years of development for the successful use of the ARGUS® technology in the field of standard gauge track, there is now a version of the current ARGUS®II system available that has been adapted for tram vehicles.i

The TRAM system is designed in such a way that it can be installed with little effort in a raised maintenance track. The vehicle operator therefore has the opportunity to measure the wheels of its vehicles when entering and leaving the maintenance hall within a very short time.

The measurement is carried out visually and therefore without any contact. In order for the sensors to be able to record the profile contour, a special short rail is installed above the steel trough.

Since the entire contour is recorded when the profile is measured, adapting the measured values to the customer's requirements is possible. In addition to the profile contours, the distance of the wheel discs in the wheelset is also determined so that relevant sizes, such as the track and guide dimensions, are also recorded.

Benefits:

- The ratio between the benefits and costs of the ARGUS®II-TRAM system is very favourable:
- Automatic wheelset testing in drive-through operation
- Non-contact measuring principle
- Calibration interval >1 year
- Interface with HEGENSCHEIDT-MFD wheelset reprofiling machine

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