Rail vehicle maintenance

Diagnostic station for wheelsets

VIDI go

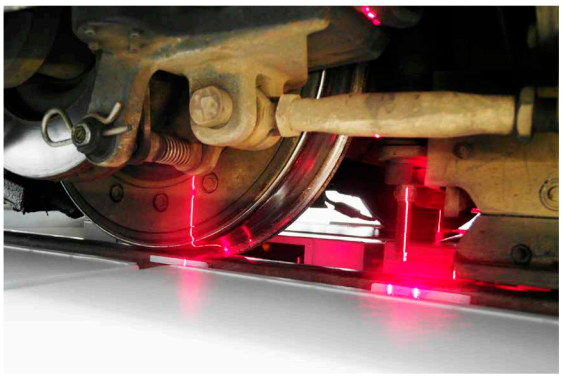
easy to learn,
easy to use,
easy to maintain…

KOLTECH

General information

VIDIgo is a diagnostic test system designed for automatic, contactless measurement of profile parameters, wheel diameter of rail vehicles, the distance between the internal face wheel surfaces, as well as wheel approaching points located on the same axle. The stand mounted on a rail track, e.g. in a tram depot, enables measurement in motion, at the speed of the measured rail vehicle up to 20 km/h.

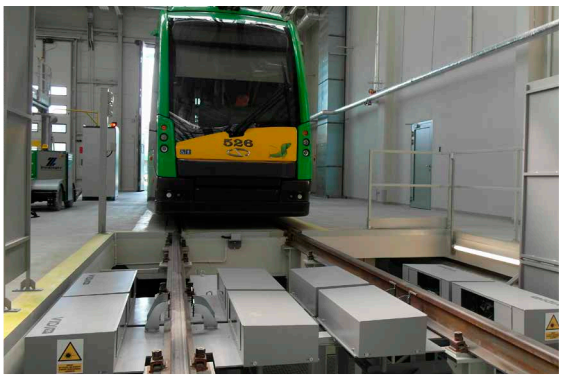
VIDIgo can be installed both in a foundation made in the floor as well as within the inspection pit. It is recommended that the station is placed under a roof to protect it from weather conditions. It is necessary to agree the location with **KOLTECH** in order to ensure the maximum level of quality of using the collected data by the system to evaluate the wear of the wheelsets.



Application

The **VIDIgo** diagnostic station is dedicated to rail vehicle depots. The idea of the system is to support the maintenance process. The system is based on multiple measurements made while driving through the station. The system is automatic - measurements are made without the participation of the depot staff. They can be performed at any time because the station works continuously 24 hours per day.

On the basis of multiple measurements in a given period of time, the system analyzes trends in terms of wear of the wheels. The recorded measurement parameters are compared with the limit values, thus determining the current condition of the wheels. Based on the measurement results, the operator can more easily and quickly evaluate the condition of the wheels' wear and relegate the appropriate vehicles for machining.



All measurement data are stored in the database on an ongoing basis. Thanks to this fact, the User can check the current condition of the vehicle at any time and generate an appropriate report. Each subsequent vehicle measurement updates the assessment of the vehicle condition in the database.

Principle of operation

The measurement is performed by means of a vision system in contactless mode. The system recreates the shape of the wheel profile, on the basis of which the parameters are determined. All elements of the measuring system are below the rail level. The vehicle is detected by sensors that also allow to determine the direction of the approach, measure the speed and control the axle. We provide equipment from leading manufacturers, which is important for the long-term operation of the station.

Based on the collected measurement results, a database is created in which the data for each wheelset is archived. Thanks to them, the operator can efficiently manage his fleet of vehicles. This database works in conjunction with the depot / User managed rolling stock database which collects information about vehicles, bogies and axles.

Advantages of the **VIDIgo** system in a series of regular measurements:

- Allows you to estimate the condition of a wheel in real time without the need to perform additional measurements with a handheld device,
- Allows you to predict when the particular wheelset should be directed for machining,
- Allows rejection from the evaluation, results distorted by dirt or other irregularities in the shape of the profile,
- Allows you to save the results and evaluate the wear of the vehicle's wheelsets in one central database,
- Automatically informs authorized Users about anticipated re-profiling dates or poor condition of wheelsets.

System configuration

The system consists of:

- Vision system for wheel measurement,
- Set of sensors for detection of vehicle passing through the station,
- Module for management of measuring system,
- Vehicle identification system,
- Light indication system – to inform about the readiness of the station for measurement.

Functionality of software

The presentation of the results can be achieved at three levels:

- List of vehicles with information about the date of the last measurement, about the condition of the vehicle and the condition of the wheels. The list can be sorted by measuring time, wear level or vehicle number. This allows the end User for easy evaluation of the condition of the entire rolling stock in one view.
- Preview of the results for the selected vehicle with information about the status of the bogies. The parameter values for each wheelset within a bogie are displayed in tabular form. It is possible to generate a detailed report.
- Detailed view of the wheelset within the vehicle. The displayed data includes the shape of the wheel profile, comparison of diameters, as well as trends of the parameters related to the indicated, particular wheelset of the vehicle.

What is worth to remember

- System of data exchange with underfloor wheel lathe. In terms of software, the **VIDIgo** diagnostic station is adapted to transfer data to the underfloor wheel lathe. The machine operator has access to the parameters of the wheels of the vehicle which should be machined; on this basis, they can estimate the smallest diameter of the wheelset and on which axle / bogie it is located.
- The **VIDIgo** system will inform about the necessity to machine the wheel in the vehicle. After pressing "Suggested machining date" you will be redirected to the axis and parameter that will exceed the permissible range first.
- The station can be connected to the depot network, so that authorized Users can connect to the web application from anywhere in the depot and analyze the results.
- **VIDIgo** station cooperates with the vehicle identification system. As standard, **KOLTECH** provides a maintenance-free vehicle identification system based on RFID technology. Nevertheless, the identification system can be adapted to the Customer's requirements. It is also possible to integrate the diagnostic stand with the vehicle identification system already used by the Customer.
- Measurement results are saved in a computer database, and their visualization is done using the application: Internet Explorer 8.0 or newer / Chrome. The software is based on a simple interface.
- There is a possibility of communication between the diagnostic stand and other depot systems.

Technical data VIDIgo

» Geometry of wheelsets:	
Track gauge – standard/ special	**1435 mm / 1000-1676 mm**
Range of tread diameters of measured wheels	**To be agreed**
Max. difference of measured tread diameters of wheels	**To be agreed**
» Technical parameters of station:	
Supply voltage	**230 V AC**
Frequency	**50 Hz**
Installed power	**2 kW**
Max. travel speed through station	**20 km/h**
» Accuracy of performed measurements:	
Flange height	**± 0,20 mm**
Flange thickness	**± 0,20 mm**
Flange width	**± 0,20 mm**
Qr	**± 0,30 mm**
Wheel tread diameter	**± 0,50 mm**
Back-to-back distance	**± 0,50 mm**

- ISO 9001: 2015
- ISO 14001: 2015
- ISO 45001: 2018

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ver 01/2021