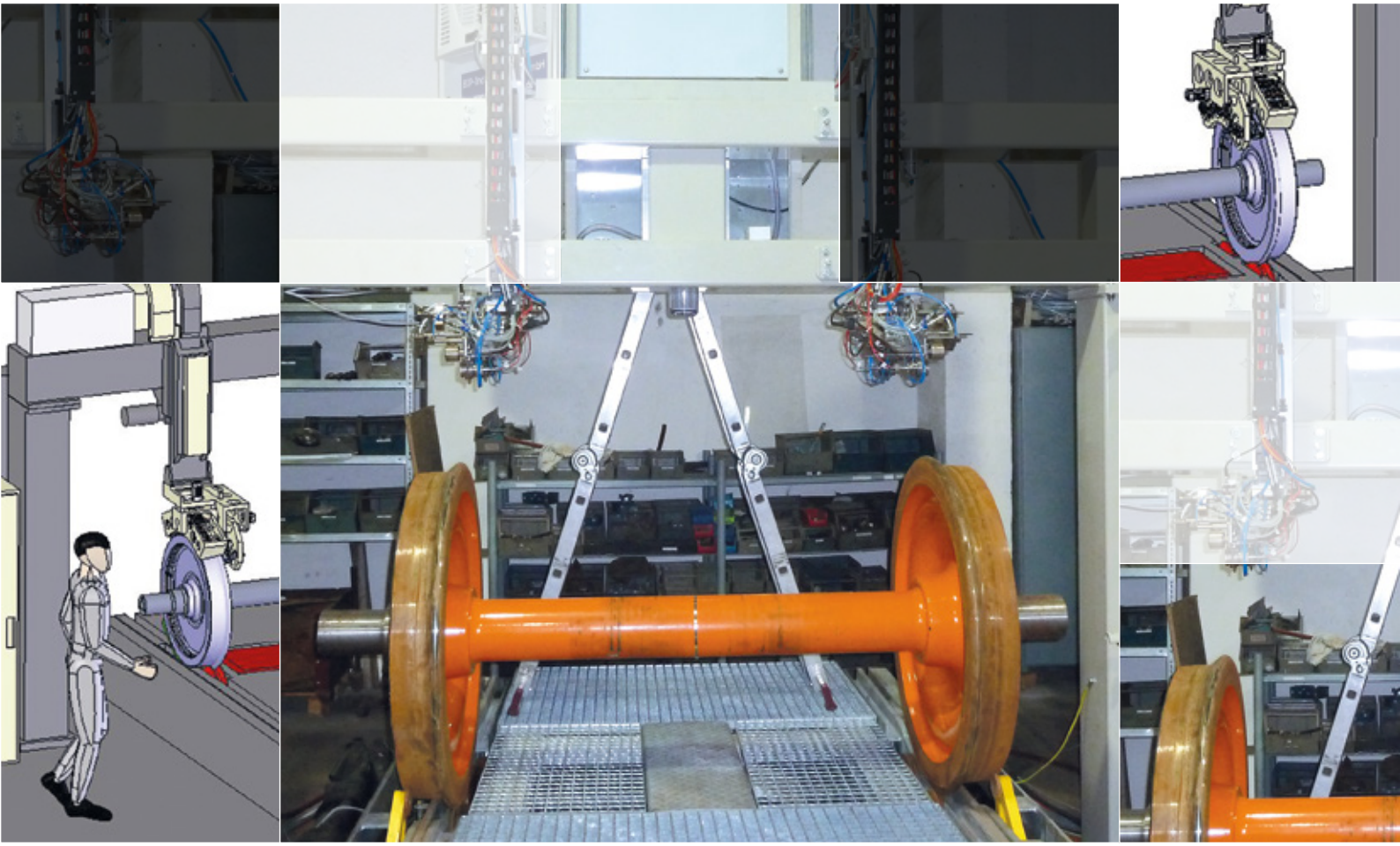
Ultrasonic Testing System
for Wheel Sets

Wheel-Set Testing System RPA-I 1300



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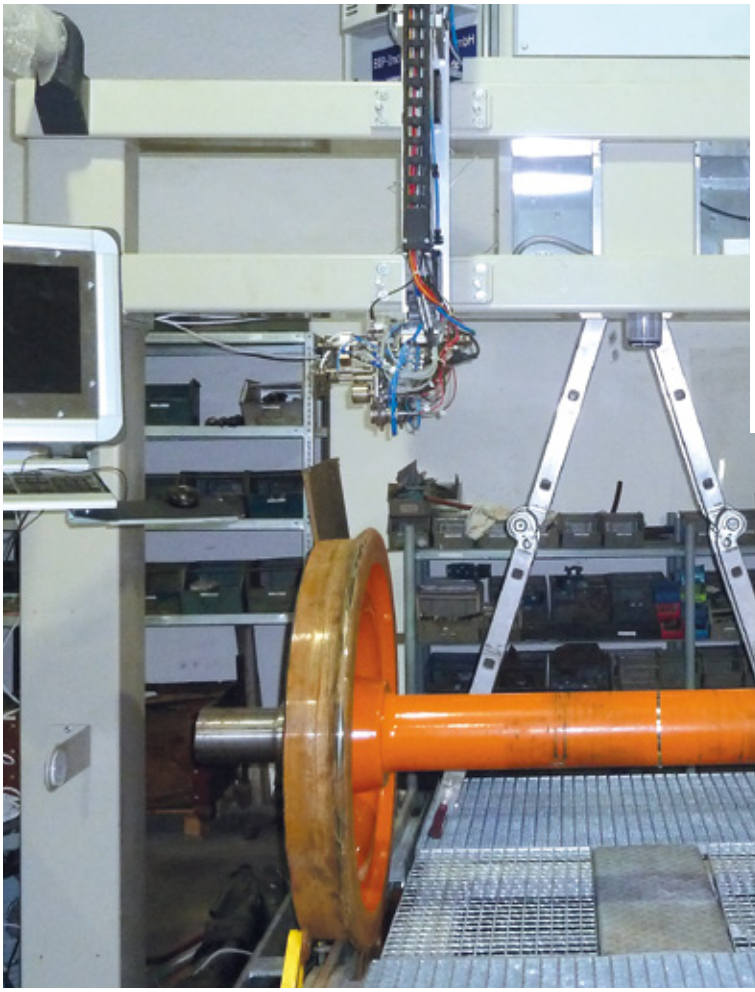

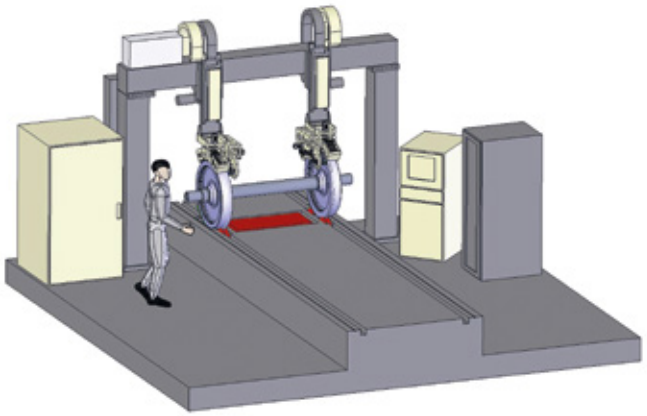

Brief description

The so-called heavy maintenance involving wheel sets being demounted from rail vehicles requires extensive testing steps in order to assess the wheels' condition. For this the wheels need to be checked for cracks and delamination around the rim, and with a special focus on the tread, using a combination of ultrasonic and eddy-current testing.

The ultrasonic testing system presented here perfectly combines both testing procedures and the requirements for transporting wheel sets during maintenance, and is therefore designed as a so-called portal testing system. The wheel sets are rolled into the system on tracks embedded in the ground, securely centre-positioned there, and then tested using two lances containing the ultrasonic probes and eddy-current sensors.

The testing system's ability to be loaded and unloaded manually or semi-automatically was just as much in focus as simple parameterability through frequently changing wheel diameters and simple adjustment of the ultrasonic technology. The testing system software was given input masks for this, enabling easy conversion and adjustment to other wheel dimensions. With a possible wheel diameter of 650 – 1100 mm, users have access to a highly efficient system when it comes to testing train wheels during heavy maintenance.

The testing system obviously complies with all common standards and regulations, and therefore also achieves all necessary certifications.

Wheel-Set Testing System RPA-I 1300

Technical data

Features

- Portal testing system with roll-in receptacle for wheel sets and running-water coupling
- Fast testing speed, resulting in short testing times with high resolution
- Optimum support by adjusting new types of wheels
- Automatic assessment of test results in accordance with applicable standards
- Test results displayed as A-, B-, C-scan
- Potential for expansion according to customer requirements

Ultrasonic / eddy current testing system

- Fully integrated 16-channel ultrasonic testing system (conventional)
- Fully integrated 8-channel eddy-current testing system
- Test results displayed on a 27”-TFT-monitor
- Various access hierarchies always ensured by using passwords
- DAC – dynamic depth compensation

Number of ultrasonic probes	14
Incidence directions and angles (per wheel)	4 x 45° (tread), 2 x 70° (flange), 0° (S/E) coupling check
Probe frequency	2 MHz (type)
Eddy-current test (per wheel)	4 sensors

Control system

- SPS (S7/300) supported drive control
- Fully integrated PC-based drive and control system
- Automatic test-process control
- 2-fold lance system with automatic feed-in to wheel
- Minimal interference to test equipment due to EMI-reduced servos
- High safety standards

Automation and mechanics

- Fixed testing system for use in production
- Portal testing system with water coupling
- Lance principle for positioning probes
- Integrated rotation drive with position encoder
- Precision guiding of probes along wheel surface

Wheel diameter	650 mm ... 1100 mm
Wheel gauge (type)	1435 mm
Test speed (type)	2 min/wheel set
Overall dimensions (w x d x h)	approx. 4000 x 1500 x 2800 mm
Weight (without deposit tables and liquids)	approx. 3000 kg

Evaluation and operating software

- Operating system Windows 10/64 bit
- High-performance operating and analysis software
- Manual input of test and sample data
- Clear layout of important information
- Various display types: A-, B-, C-scans
- Freely adjustable assessment thresholds
- Extensive zoom functions
- Report generator with various export functions
- Data backup using USB-drive or LAN/WLAN
- Integration in company network
- Remote diagnosis and offline analysis functions

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