



# Krautkrämer WheelStar

Ultrasonic under-car rail  
wheel inspection system

- High return on investment
- Superior performance
- Reliable automated process
- Trusted by customers, auditors  
and operators

**Innovation starts here.**

 **Waygate  
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## Rail travel has experienced continuous and accelerating growth with ever increasing demands for safety.

Today's demands on trains are high. High-speed passenger trains operating at speeds in excess of 250km/h, regional trains covering huge distances on a daily basis, and the increase in heavy freight loads are taxing the limits of rolling stock. To ensure that no compromises are made on the safety of rail components, rail operators, manufacturers and maintenance facilities are constantly seeking increased productivity and improved quality using nondestructive testing solutions.



Train wheels are one of the most safety critical elements of rolling stock as they are exposed to high stress, particularly due to increasing speeds, loads and distances. Global railroad standards require these assets to be ultrasonically inspected during maintenance on a regular basis.



### Maximized productivity

- 15 minutes cycle time per wheelset
- 90 seconds net testing time per wheel
- No wheelset removal required
- No time-consuming repositioning
- Reduction of work preparation due to pre-programmed wheel types



### Best results

- Fully automated inspection with highest reproducibility and traceability
- Less false calls due to elimination of geometric echos and automated defect recognition
- Intelligent highlighting of relevant incident increase inspection quality



### Easy operation

- Short operator training
- Straightforward operating workflow with integrated PLC control
- Battery powered and cable-free operation
- Wireless data transfer
- Compliant to specific requirements of users around the world
- Automated reporting



### Industry proven

- Long lifetime, high-quality design
- Modular system with integrated high-end Krautkrämer USIP electronics
- Professional project execution, trusted by industry leaders

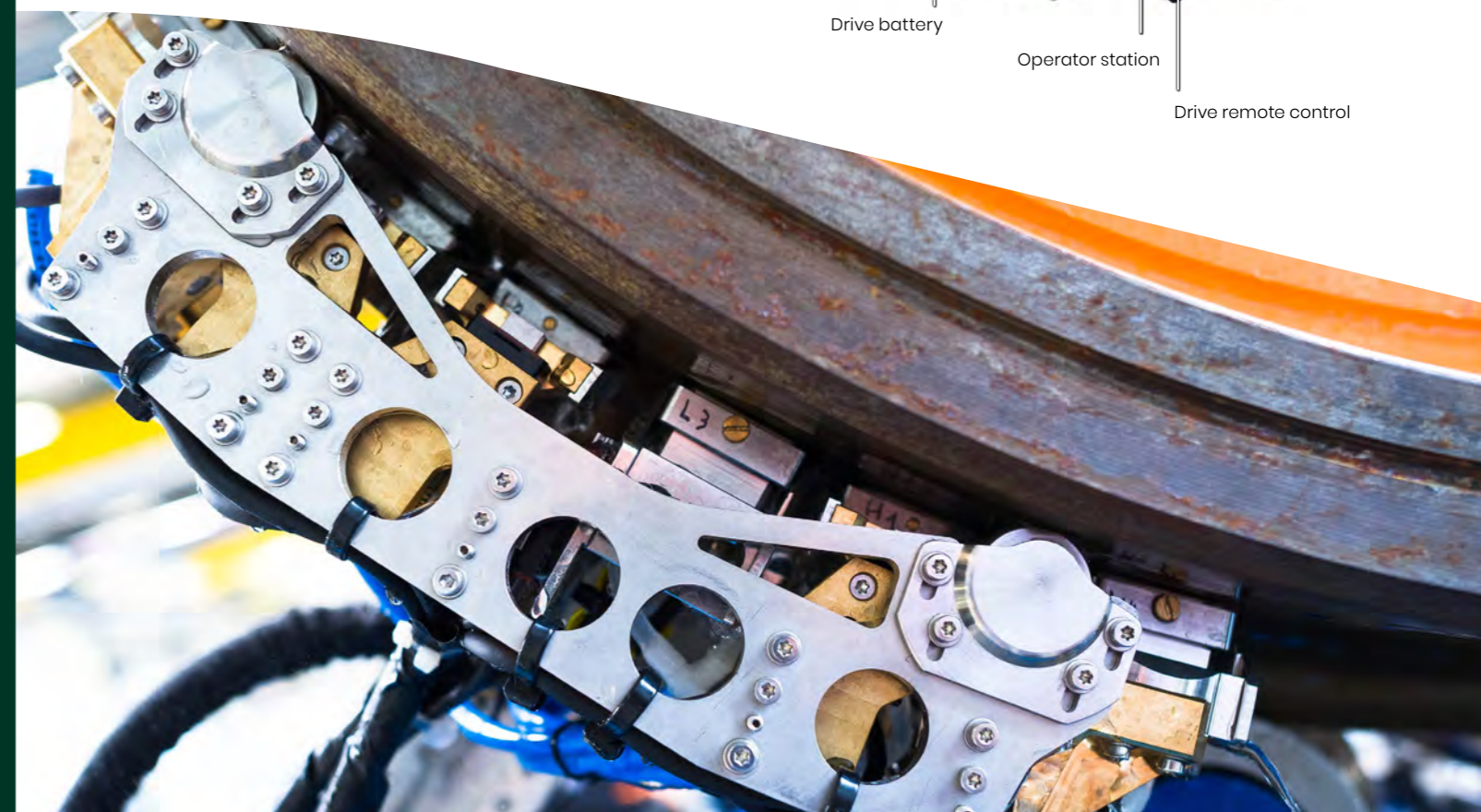
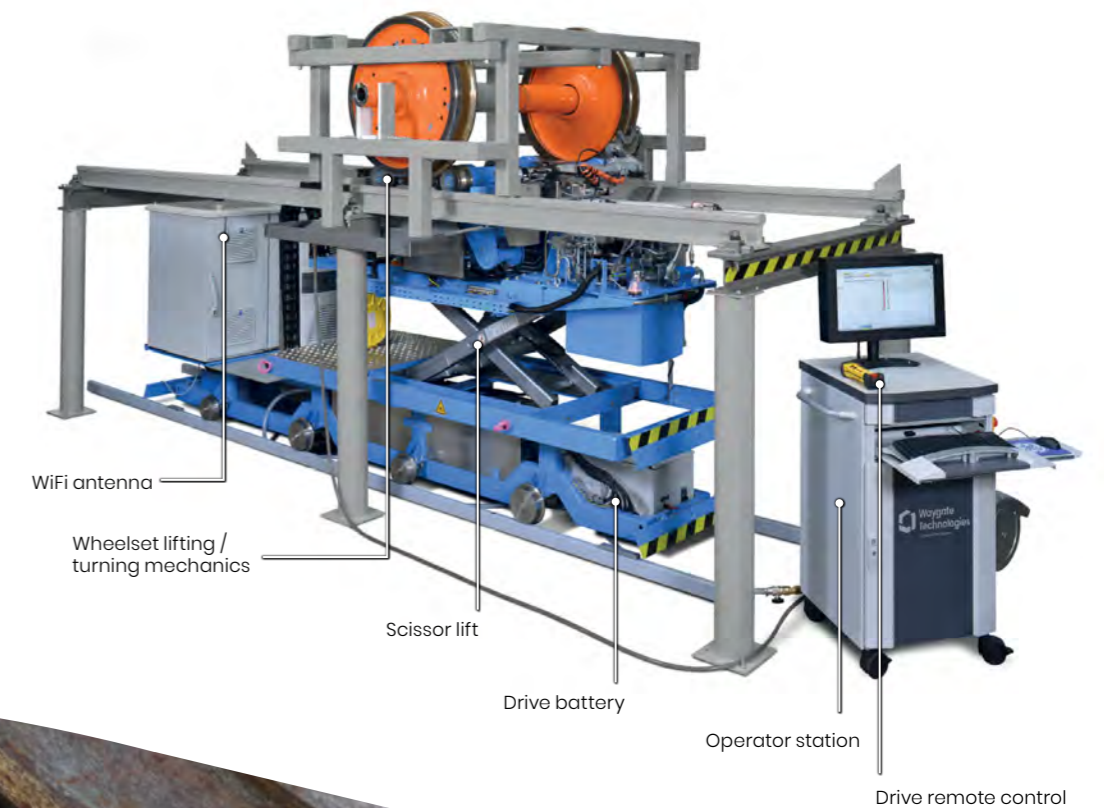
## Overnight wheel inspection made easy

The under-car version of the Krautkrämer WheelStar marks the optimum in productivity when testing train wheels in service. Without removing the wheelset from the train, it is lifted and turned during the test by the integrated mechanics. This whole inspection cycle only takes 15 minutes per complete wheelset. High-end ultrasound signal processing is applied from probes to evaluation.

A combination of conventional and phased array transducers ensures ideal adaptation to the inspected

areas: WheelStar inspects the tread, face, flange and (straight) web areas of the wheel and visualizes the results in a projection view including automatic defect recognition for easy interpretation by the operator.

Operation commands and the UT signals are transferred via an industrial wireless connection to the operator station for maximum flexibility whilst minimising cables. The test mechanics are moved from wheelset to wheelset by integrated, battery powered drive motors.



## WheelStar software is trusted by operators

- Easy to operate, only short operator introduction required
- Guided workflow, from stored wheel type to automated data transfer and reporting
- PLC control fully integrated
- Easy result interpretation and fewer false calls thanks to automated defect recognition and geometry echo suppression



## Specifications

- USIP high-end electronics with modular architecture
- 8 phased array probes, 6 conventional probes, 2 – 4 MHz
- Phased array: Radial and axial angle sweep
- Cable-free, battery powered, movable test mechanics, length ~ 4.5 m
- Wireless data transmission between test mechanics and operator workstation: Industrial Wi-Fi 802.11 g/n
- Workflow based software with integrated PLC control and stored wheel types
- Optional: Store ultrasound A-Scans for easy drill-down
- 15 minutes per complete wheelset. 90 seconds net scan time per wheel

## Flaw detectability

- Volumetric flaw: FBH  $\geq$  2 mm
- Surface flaw: Crack  $\geq$  5 mm length,  $\geq$  1 mm depth
- Inspected area: Tread, face, flange, web (planar). Realized by set of conventional and phased array transducers
- Complies: DIN 27201-7, other specifications on request

For more detailed information, please visit our website or contact us.

[waygate-tech.com](http://waygate-tech.com)

