

KinetiX | Inspection Technologies



AXLE
NUT
MISSING



MISSING
COUPLER
PIN



BROKEN
FLOOR
SUPPORT



KINETIX INSPECTION TECHNOLOGIES

Keeping railway assets in motion



How can you make your operation faster and more efficient while helping to ensure optimal performance and safety?

In today's challenging environment, many railroads struggle with asset condition, situational awareness, and a workforce in transition.

RAIL OPERATORS NEED THE ABILITY TO

Streamline inspections and operations:
Automate inspections. Improve accuracy.

Increase asset reliability and availability:
Preempt issues. Maximize workforce. Reduce cost.

Improve safety and compliance:
Mitigate incidents. Protect personnel.

Increase situational awareness:
Maintain visibility. Execute efficiently.



IMPROVE ASSET PERFORMANCE, REDUCE MAINTENANCE COSTS, AND MINIMIZE TRAIN DELAYS.

Railroads worldwide face a common challenge: how to maximize the operational availability and reliability of rail assets while minimizing costs. Within every trip, there are hundreds of variables that when not maintained properly, can reduce fuel efficiency, shorten maintenance intervals, degrade asset life, or even bring the mission to a complete halt, resulting in costly network delays and service interruptions.

KinetiX Inspection Technologies delivers the next generation of automated rolling stock and infrastructure monitoring, inspection, and maintenance optimization.



WAYSIDE

Automated inspection and condition assessment of assets — ranging from wheel surface condition to full train inspection — while operating at track speeds.

KEY TECHNOLOGIES

- Advanced vision systems
- Image processing
- Acoustic sensors
- Thermal sensors
- Vibration sensors
- Hot Bearing Detection



TRACK

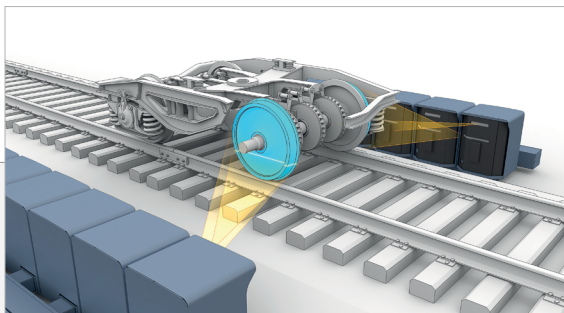
Non-destructive internal flaw detection utilizing advanced ultrasonic technology and AI/ML-enhanced digital processing to monitor rail condition.

KEY TECHNOLOGIES

- Multi-channel ultrasonic wheel probes
- AI/ML digital data processing
- Cloud data storage & reporting
- Run-on-run condition monitoring

Solutions Showcase **Machine Vision**

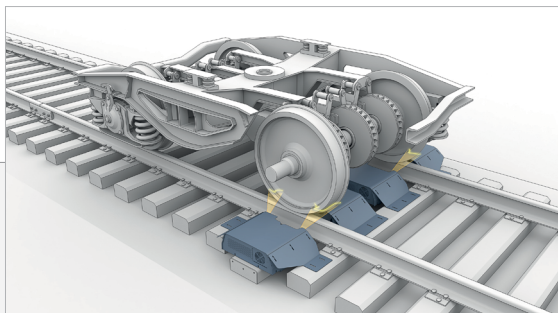
Wayside Inspection



WHEEL SURFACE INSPECTION

TreadView®

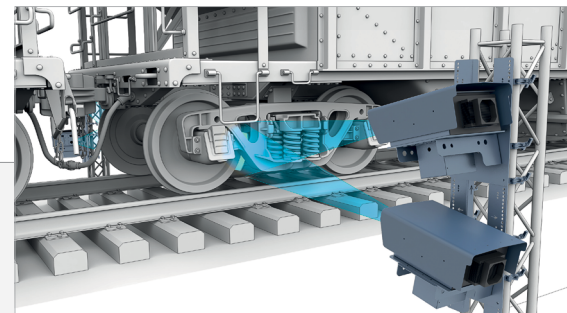
- Shelled and spalled tread
- Major scrapes, dents, and gouges
- Broken/missing wheel sections
- Shattered rim
- Broken /damaged flange
- Wheel flats and slid flats
- Wheel OOR (out-of-round)
- Built-up tread
- Tread groove



WHEEL PROFILE MEASUREMENT

WheelView®

- Full wheel profile
- Flange height
- Flange width (thickness)
- Flange slope
- Tread hollow
- Rim thickness
- Back-to-back (B2B)



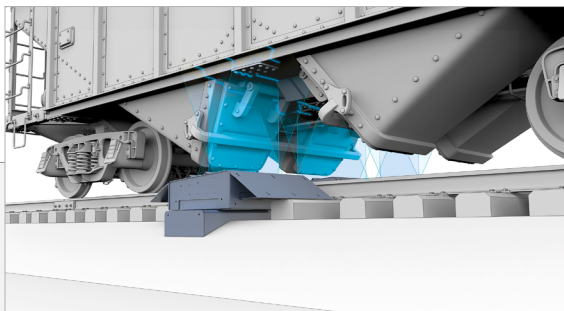
BRAKE INSPECTION AND MEASUREMENT

BrakeView®-Shoe

- Shoe thickness in top and bottom positions
- Shoe wear profile
- Shoe position with respect to the wheel surface
- Missing key detection
- Missing shoe detection
- Shoe securement key length

Solutions Showcase **Machine Vision**

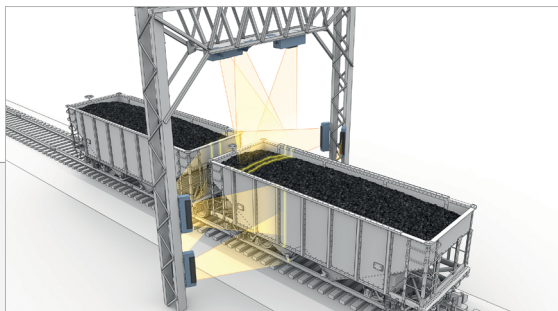
Wayside Inspection



RAILCAR STRUCTURAL
COMPONENTS + UNDERCARRIAGE

CSCView

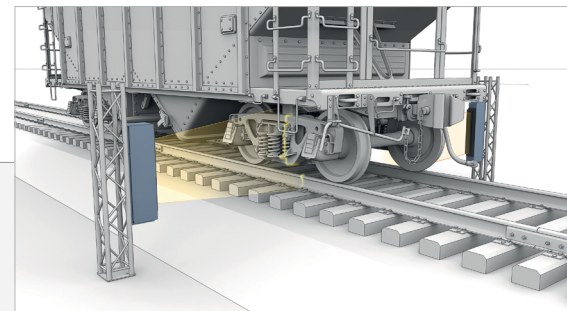
- Floor support inspection
- Center sill crack detection
- Brake beam inspection
- Missing bolt(s) detection: coupler and draft gear carrier plates
- Missing knuckle pin detection
- Missing uncoupling lever detection



FULL SCALE TRAIN IMAGING & INSPECTION

TrainView

- Wagon tag identification
- Missing/damaged reflective decals detection
- Missing label holder detection
- Missing brake wheel detection
- Missing/broken shedding shields detection
- Bent top chord detection



PANTOGRAPH INSPECTION

TruckView

- Wedge height
- Bolster height
- Spring nest height
- Spring inspection
- Missing bearing cap and cap bolts
- VTA valve inspection
- Missing R-clip and clevis pin detection

Solutions Showcase

Acoustic, Vibration, and Thermal Monitoring

Wayside Inspection



BEARING ACOUSTIC MONITOR

RailBAM

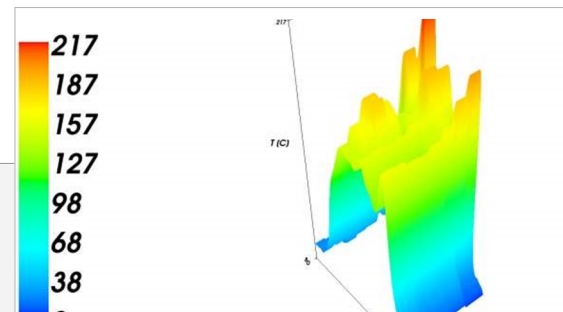
- Axle bearing faults
- Beam forming technology
- Multiple bearing classes
- Axle count
- Aar rules compliant
- Early and consistent fault detection
- Fleet-wide data
- 1b variant targets:
 - Inboard axle journal
 - Gearboxes
 - Suspension/u-tube bearings
 - Traction motors



WHEEL CONDITION MONITOR

WCM

- Wheel impact detection
- Weight measurements for wheel, axle and vehicle
- Reporting overloading at different levels
- Vehicle end-to-end (ETE) and side-to-side (STS) imbalance
- Detection and reporting of poor wheel load distribution
- Detail surface defect detection via imaging systems (optional)



ANALYTICS APPLIED TO THERMOGRAPHIC IMAGES

Hot Bearing Detection

- Identifies and records temperatures of standard axel, wheel, and braking systems
- Detects hot bearings, wheels and defective brakes with high reliability
- Self calibration is accomplished after every train has passed, eliminating quarterly calibration efforts
- The system is not subject to the failure modes of an externally calibrated relative temperature reading

Solutions Showcase

Ultrasonic Rail Flaw Detection

Track Inspection



ULTRASONIC

FLEX Ultrasonic Rail Flaw Detection System

Ease of maneuverability and compact size for tight clearances

Carriage can be mounted to multiple vehicle platforms (Nordco or customer provided)

Flex carriage can be raised in seconds

Multiple wheel probe configurations available to suit any application

Enhanced pattern recognition & defect classification software

GPS tagging of system movement and defect location, to the thousandth of a mile



ULTRASONIC

OnePass Portable Ultrasonic Rail Flaw Detection System

Portable, 12-channel, battery powered, digital ultrasonic flaw detector

RailTruck software with A-Scan, B-Scan, recognition engine & full audit capability

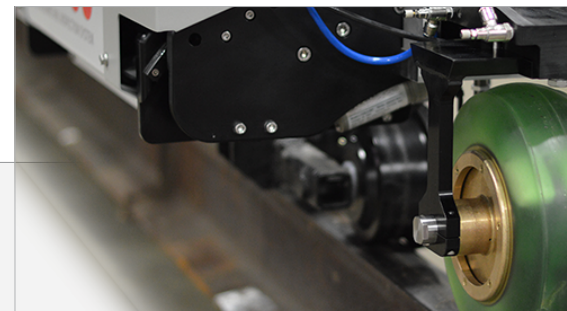
Lightweight, rugged tablet user-interface

Smart Tracking of GPS locations

SmartFlow couplant delivery

On-board hand test kit with wireless flaw detector software

Rugged transport case



ULTRASONIC

Rail-Bound Ultrasonic Rail Flaw Detection System

Continuous, non-stop testing at speeds up to 45 mph (60 km/h) under optimal rail conditions

Integration with other track inspection systems to provide maximum defect detection and management

Patented enhanced pattern recognition and defect classification

GPS tagging of car movement and defect location, to the thousandth of a mile

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KinetiX

Inspection
Technologies



AXLE
NUT
MISSING



MISSING
COUPLER
PIN



WORN
BRAKE
SHOE