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Inspection
Technologies

BRAKEVIEW OVERVIEW

Brake Inspection

BrakeView® is an automatic inspection system that inspects and measures brake discs, pads, and shoes at mainline operational speeds.

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BrakeView[®]-Disc

BRAKE DISC INSPECTION

The BrakeView-Disc system utilizes high-speed digital imaging together with laser based structural light and other illumination sources to automate brake disc inspection.

Images of the Brake discs are captured from below and are processed by a set of image processing algorithms to reconstruct the disc profile in three dimensions. Measurements of the brake thickness and surface hollow can then be produced. Image based inspection of the disc and surrounding area can be deployed to identify other defects.



BRAKEVIEW-DISC SYSTEMS

Processed data and images from the BrakeView-Disc system are integrated into the CMMS™ (Condition Monitoring Management System) software to provide web-based access for data visualization, alarm management, and data analytics. Automated alarms on the measurements and identified defects can be used to facilitate condition based maintenance workflows.

The design of the systems includes a self-cleaning mechanism and protective shutters to facilitate continual operation and reduce manual maintenance interventions. Wabtec produces variants of the BrakeView-Disc system for both wheel and axle mounted discs and the system design can be adapted to the rolling stock that is being inspected.

The information that BrakeView-Disc generates enables rolling stock operators to improve and optimize their maintenance processes. Worn or defective discs can be identified and maintained earlier, reducing costly incidents. Data driven predictive maintenance practices can be used to maximize component lifecycles and reduce maintenance costs.

MEASUREMENTS

Disc thickness

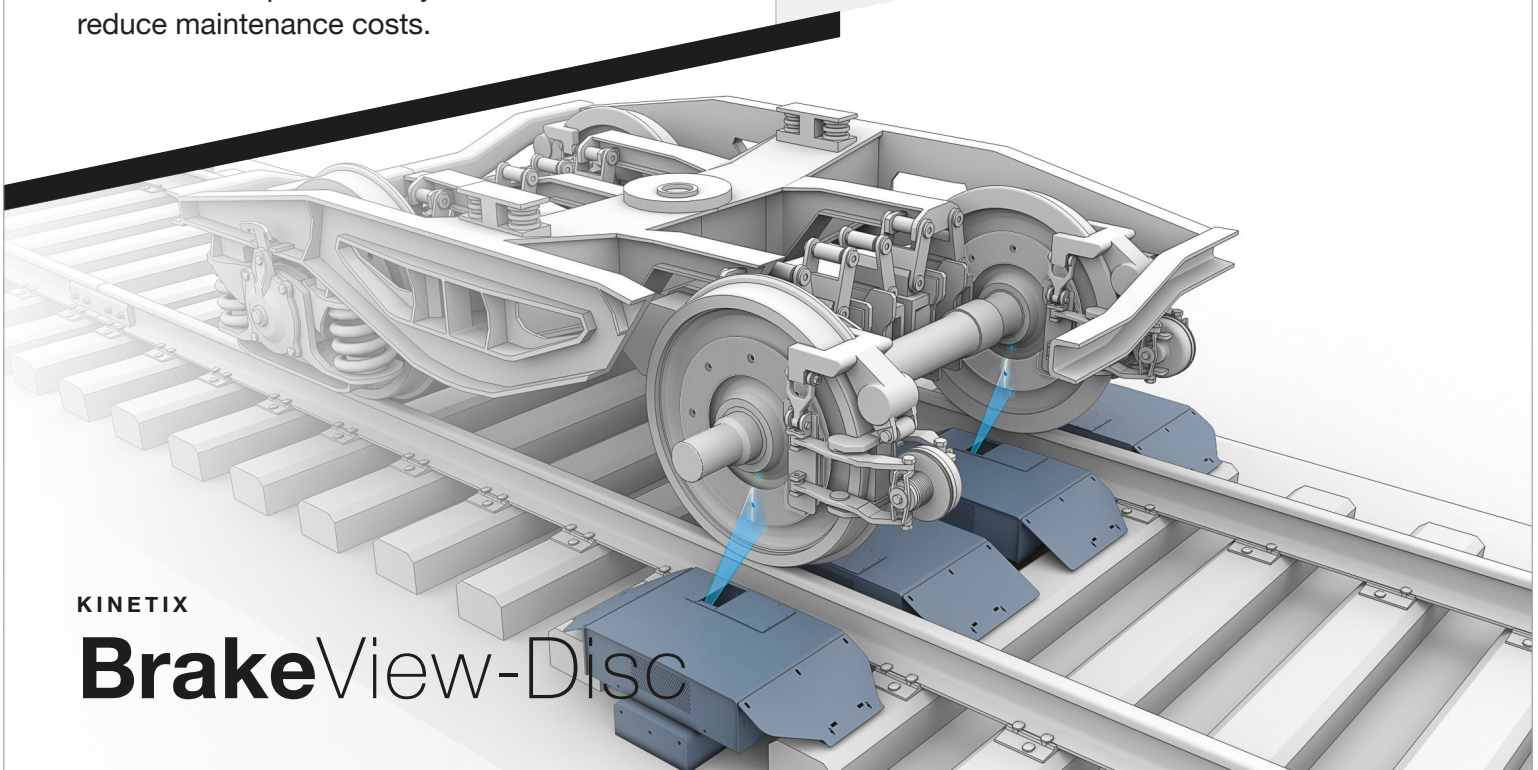
Disc flatness

Alarms on disc thickness levels

Missing disc detection

Visual images of the disc and surrounding area

Depending on the rolling stock types and requirements, the system's measurement outputs may require optimization or customization.

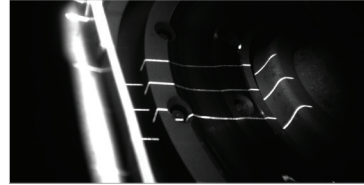
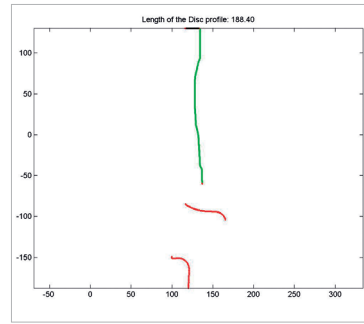


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BrakeView-Disc

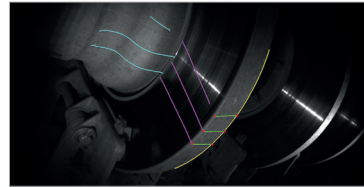
SYSTEM FEATURES

- Bi-directional system
- Inspection and measurement at mainline operational speeds
- Operates in extreme environments
- Installed in track using a steel sleeper (tie)
- Easy maintenance
- Air purge unit for system cleaning
- Automatic defect reporting



SOFTWARE FEATURES

- Digital image acquisition/processing
- AEI (RFID) integration
- Automatic reporting
- Web-based database/visualization (with CMMS™ (Condition Monitoring Management System) or TrainWatch™ software)
- Remote monitoring/control



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BrakeView[®]-Pad

BRAKE PAD INSPECTION

The BrakeView-Pad system utilizes high-speed digital imaging together with laser based structural light and other illumination sources to automate brake pad inspection.

Images of the Brake pads are captured from below and are processed by a set of image processing algorithms to reconstruct the pad profile and provide pad thickness measurements. Image based inspection of the pad and surrounding area can be deployed to identify other defects. The BrakeView-Pad imaging system and processing algorithms are designed to operate in all ambient light and weather conditions.



BRAKEVIEW-PAD SYSTEMS

Processed data and images from the BrakeView-Pad system are integrated into the CMMS™ (Condition Monitoring Management System) software to provide web-based access for data visualization, alarm management, and data analytics. Automated alarms on the measurements and identified defects can be used to facilitate condition based maintenance workflows.

The design of the systems includes a self-cleaning mechanism and protective shutters to facilitate continual operation and reduce manual maintenance interventions. Wabtec produces variants of the BrakeView-Pad system for both wheel and axle mounted discs and the system design can be adapted to the rolling stock that is being inspected.

The information that BrakeView-Pad generates enables rolling stock operators to improve and optimize their maintenance processes. Worn or defective pads can be identified and maintained earlier, reducing costly incidents. Data driven predictive maintenance practices can be used to maximize component lifecycles and reduce maintenance costs.

MEASUREMENTS

Pad thickness

Alarm on pad thickness levels

Missing pad detection

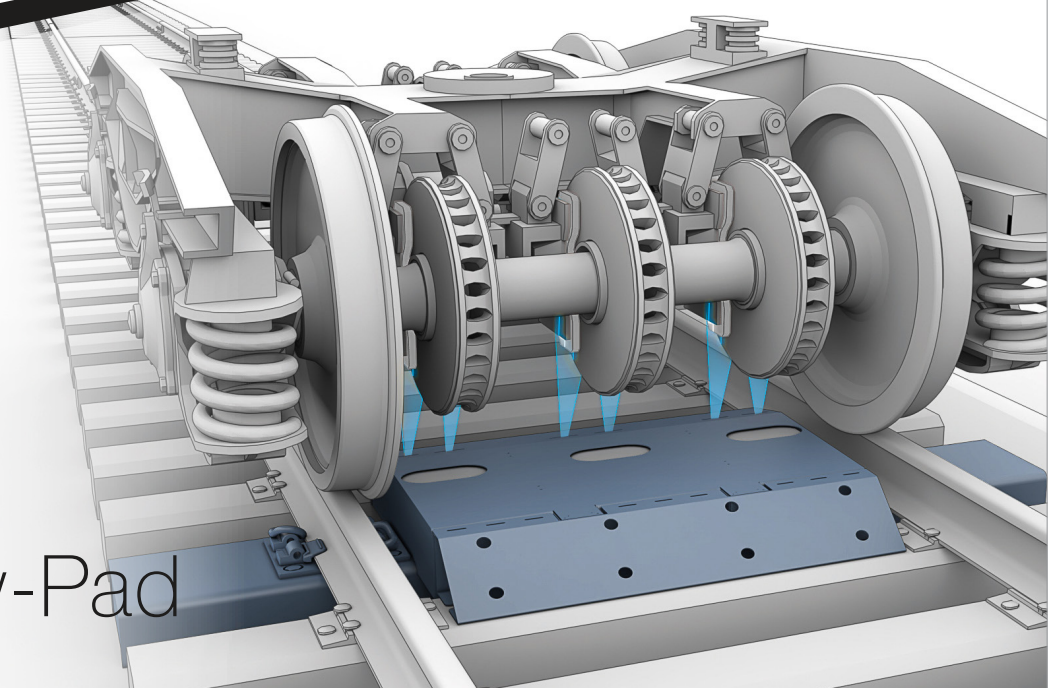
Broken pad detection

Visual image of the pad and surrounding area

Depending on the rolling stock types and requirements, the system's measurement outputs may require optimization or customization.

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BrakeView-Pad



SYSTEM FEATURES

Bi-directional system

Inspection and measurement at mainline operational speeds

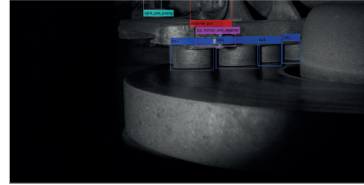
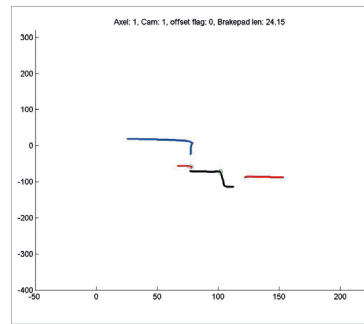
Operates in extreme environments

Installed in track using a steel sleeper (tie)

Easy maintenance

Air purge unit for system cleaning

Automatic defect reporting



SOFTWARE FEATURES

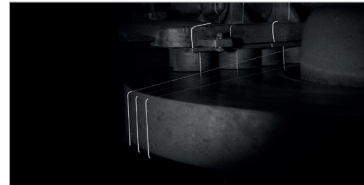
Digital image acquisition/processing

AEI (RFID) integration

Automatic reporting

Web-based database/visualization (with CMMS™ (Condition Monitoring Management System) or TrainWatch™ software)

Remote monitoring/control



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BrakeView[®]-Shoe

BRAKE SHOE (BLOCK) INSPECTION

The BrakeView-Disc system utilizes high-speed digital imaging together with laser based structural light and other illumination sources to automate brake disc inspection.

Images of the Brake discs are captured from below and are processed by a set of image processing algorithms to reconstruct the disc profile in three dimensions. Measurements of the brake thickness and surface hollow can then be produced. Image based inspection of the disc and surrounding area can be deployed to identify other defects.



BRAKEVIEW-SHOE SYSTEMS

Processed data and images from the BrakeView-Shoe system are integrated into the CMMS™ (Condition Monitoring Management System) software to provide web-based access for data visualization, alarm management, and data analytics. Automated alarms on the measurements and identified defects can be used to facilitate condition based maintenance workflows.

The system consists of multiple scanner boxes, installed on specifically designed aluminum truss towers, that are mounted on foundations on each side of the track. The BrakeView-Shoe is installed at a safe distance from the center of the track.

The information that BrakeView-Shoe generates enables rolling stock operators to improve and optimize their maintenance processes. Worn shoes and installation defects can be identified and maintained earlier, reducing costly incidents. Data driven predictive maintenance practices can be used to maximize component lifecycles and reduce maintenance costs.

MEASUREMENTS

Shoe thickness in top and bottom positions

Shoe wear profile

Shoe position with respect to the wheel surface

Missing key detection

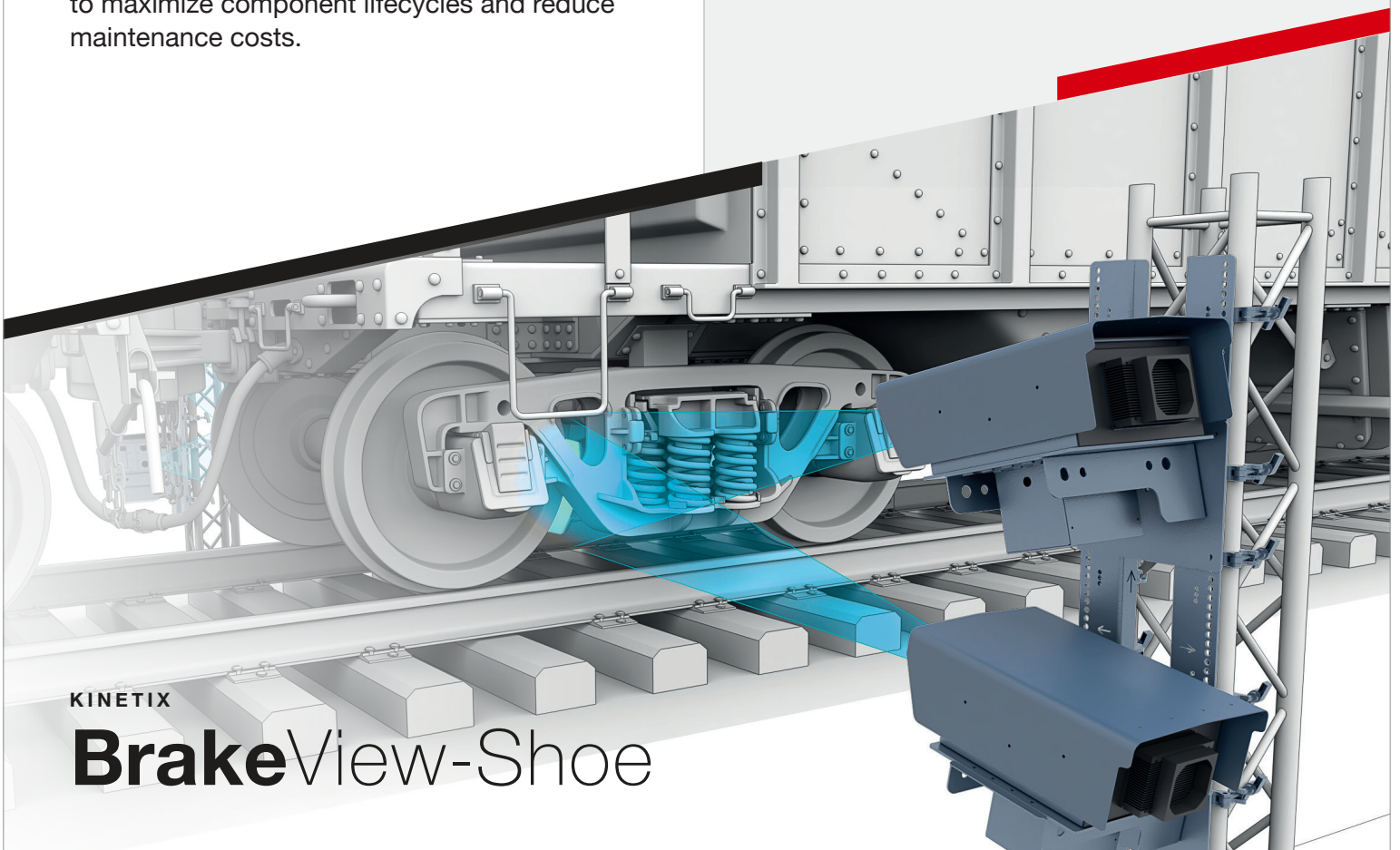
Missing shoe detection

Shoe securement key length

Depending on the rolling stock types and requirements, the system's measurement outputs may require optimization or customization.

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BrakeView-Shoe



SYSTEM FEATURES

Bi-directional system

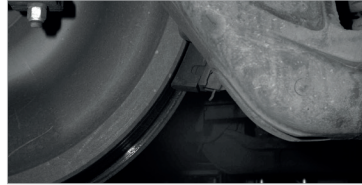
Inspection and measurement at mainline operational speeds

Operates in extreme environments

Installed off track on tower or pole (concrete or steel base) with no track interference

Easy maintenance

Automatic defect reporting



SOFTWARE FEATURES

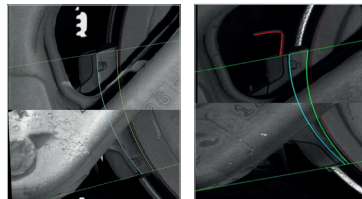
Digital image acquisition/processing

AEI (RFID) integration

Automatic reporting

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Remote monitoring/control



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