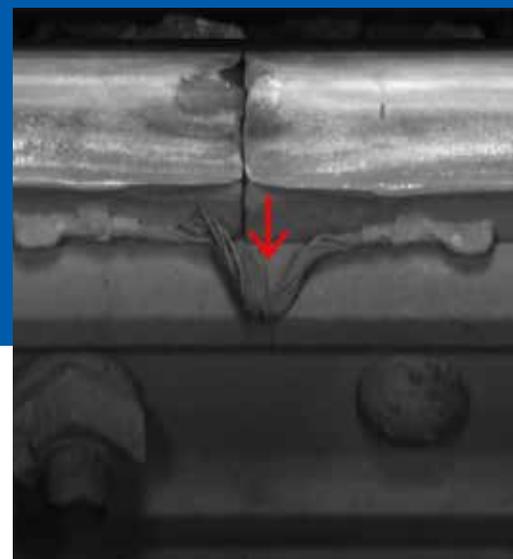![ENSCO Rail logo]

Track Imaging Systems

ENSCO patented machine-vision technology distinguishes defects from normal track features

ENSCO Rail focuses on technology for railway imaging systems. ENSCO's expertise with high resolution camera systems and advanced image processing algorithms results in systems with extremely reliable image acquisition and processing capabilities. This approach has been successfully applied to the inspection of a range of track components, including joint bars (fish plates), ties, fasteners, rail heads, overhead wire, as well as track right-of-way (ROW). All ENSCO rail imaging systems can operate either day or night to reduce operational interruptions.

Joint Bar (Fish Plate) Inspection System (JBIS)

The JBIS employs patented vision inspection technology and methods to perform automated crack detection on joint bars, measure rail gap, and deliver joint bar inventory reports. The system generates real-time exception reports, including continuous line scan images of suspect joint bars, and automatically inventories all joint bars and cracks in a permanent database. The JBIS, developed in partnership with the Federal Railroad Administration's (FRA) Office of Research and Development, increases inspection efficiency by reducing labor costs associated with traditional methods of joint bar evaluation.

Track Component Imaging System (TCIS)

ENSCO's TCIS employs patented line scan imaging methods to collect and record continuous high-resolution images of the track road bed from a moving vehicle. The system includes software that automatically identifies track components of interest, such as ties, fasteners, or ballast for further review from the safety of an office environment. ENSCO's TCIS can not only provide essential information for track maintenance planning, but it can also play an important role in the improvement of inspection practices through a reduction in traditional inspection cost and enhancement of worker safety.
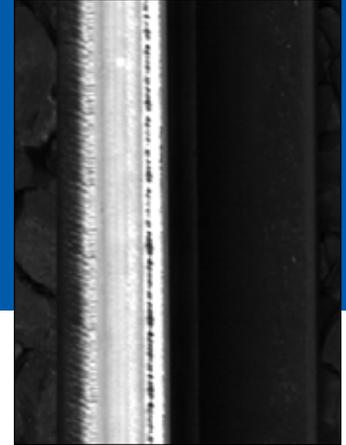
High-speed and superior quality track imaging systems provide comprehensive track inspection and evaluation through advanced machine-vision processing

ENSCO track imaging systems identify and inspect track components and defects

Driver view imaging system

Rail Surface imaging system

Driver View Imaging System (DVIS)

The DVIS provides driver point-of-view, progressive scan color images of the track ROW, allowing the railway to capture essential information about their track structure and surroundings. Each recorded image is tagged with GPS, milepost or kilometer post location, and date and time.

An optional lighting system is available for enhanced visualization at night or in tunnels. ENSCO's DVIS can deliver crucial information for track/tunnel inspection programs, operational planning, and accident or incident investigations.

Tunnel Wall Imaging System (TWIS)

The TWIS is a field-proven design that incorporates additional cameras to the DVIS to provide additional imagery of tunnel walls, in particular upper corners of the tunnel walls. This allows for high resolution images of critical areas of the tunnel walls, ceiling, and associated mounted equipment. The TWIS includes a lighting system to allow for crisp imagery of the tunnels. The TWIS lighting also has a public safety feature while going through stations.

Rail Surface Imaging System (RSIS)

ENSCO's RSIS employs patented line scan imaging methods to collect and record continuous high-resolution images of rail surface from a moving vehicle. The system allows for high resolution inspection of the rail surface for conditions including Rolling Contact Fatigue (RCF), shelling, spalling, squat surface cracking, engine burns, and broken rail. ENSCO's RSIS aids in providing a comprehensive assessment of rail surface conditions to aid in safety and maintenance activities.

Thermal Imaging System (THIS)

ENSCO's Thermal Imaging System (THIS) provides a driver point-of-view images of the track ROW. The THIS automatically creates exceptions to hot or cold conditions which exceed definable thresholds. Additionally each image is tagged with GPS coordinates and milepost (or kilometer post or chainage). The THIS can provide invaluable automated temperature inspection of the track ROW to find hot spots that associated with third rail or catenary power equipment, or cold spots due to water drainage issues.

Tunnel Wall Imagery System (TWIS)

Key Features

- Employs patented vision-inspection technology and techniques
- Continuous, high resolution track images
- Intelligent machine-vision algorithms for review and identification of anomalies
- Automatic image archiving and component inventory
- Integration with full-sized track inspection cars as well as hi-rail vehicles
- Centralized office review and reporting system

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