



Our wide range of technical services is designed to help improve operational efficiency and network integrity on all types of rail networks.

Our technical team is available to provide advice and support, helping you to optimise your rail selections.

Rail products and grades can be matched precisely to track conditions, track types, environmental conditions and a host of other variables to ensure that every rail we deliver provides optimum performance throughout its service life.

#### Light rail

We carry out detailed condition surveys covering all aspects of rail infrastructure to effectively benchmark assets, monitor their performance and direct maintenance strategies to address degradation such as wear and corrugation.

#### Heavy rail

We advise networks on the most cost-effective product selection and design for new track installations, as well as monitoring performance and optimising maintenance strategies for existing infrastructure.

#### Metallurgy and materials technology

As pressure grows on railways to carry larger volumes of passenger and freight traffic, duty requirements are ever-increasing and maintenance opportunities are decreasing. That's where we come in.

Our experienced metallurgists and materials technologists help to design and select track system components to meet specific duty requirements. The team works closely with network operators and maintainers to enhance network performance, reliability and safety.

We offer advice on current standard rail grades and how to optimise their use and we also share our expertise in premium grade rail steels to provide solutions for rail networks suffering high rates of side wear in curves, rolling contact fatigue and loss of longitudinal profile.

For network areas experiencing corrosion issues, our materials technologists have considerable experience in the use of coatings to prevent this.

#### Failure analysis

Component failure, particularly the occurrence of broken and defective rails, is a significant source of disruption to railway operations and has serious safety implications for all users of the rail network. It is critical that individual failure modes are correctly identified and recorded to ensure that investment in corrective actions is effective and results in a safer, more reliable railway system.

We have extensive knowledge of fatigue and fracture analysis of railway components with all of the skills required

to conduct detailed metallurgical investigations of component failure. These services include microscopy, image and composition analysis, mechanical testing and non-destructive testing.

We establish the root causes of component failure, and recommend corrective and preventive actions to reduce the number of future failures in order to improve operational performance and railway safety. If you have unexplained track or component failures, then our team can help.

### Track monitoring

We offer a range of track monitoring services to identify track degradation and help our customers avoid disruptive and costly unscheduled maintenance.

Track systems suffer from many types of degradation, for example wheel and rail wear, rail defect initiation and propagation. Expert understanding of degradation is vital if it is to be corrected, slowed down and managed. Developing this understanding requires precise, methodical and expert observation, accurate measurement of track conditions and monitoring of the track system's response to the passage of rail vehicles.



Our multi-disciplined team has vast experience of monitoring the in-service performance of rail networks. Monitoring techniques range from detailed visual inspections to using precise instrumentation and non-destructive testing. Survey results can be used to identify causes and rates of degradation, helping rail operators predict performance and develop appropriate techniques for effective asset control.

### Welding technology

We have a thorough understanding of all the welding techniques typically used on railways throughout the world. We work with customers on a wide range of projects related to flash butt (both plant-based and mobile), aluminothermic and repair welding.

We also advise customers on optimising the weld process to ensure adherence to national and international specifications.

Our welding technology consultancy service helps customers produce reliable welds, reduce weld maintenance costs and extend rail life. We can develop welding schedules designed to control weld geometry, optimise weld process control and enhance process monitoring and analysis.

### Laboratory testing

We can conduct a wide range of laboratory tests to international standards, as well as designing and building bespoke test arrangements.

These provide customers with independent certification of the performance of safety-critical railway components. Laboratory testing can also be used to investigate the performance of worn components to verify inspection and maintenance standards, and to fine-tune the standards where appropriate to minimise life cycle costs whilst ensuring a safe and reliable network.

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RTSD:ENG:092022

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