

[www.progressrail.com/
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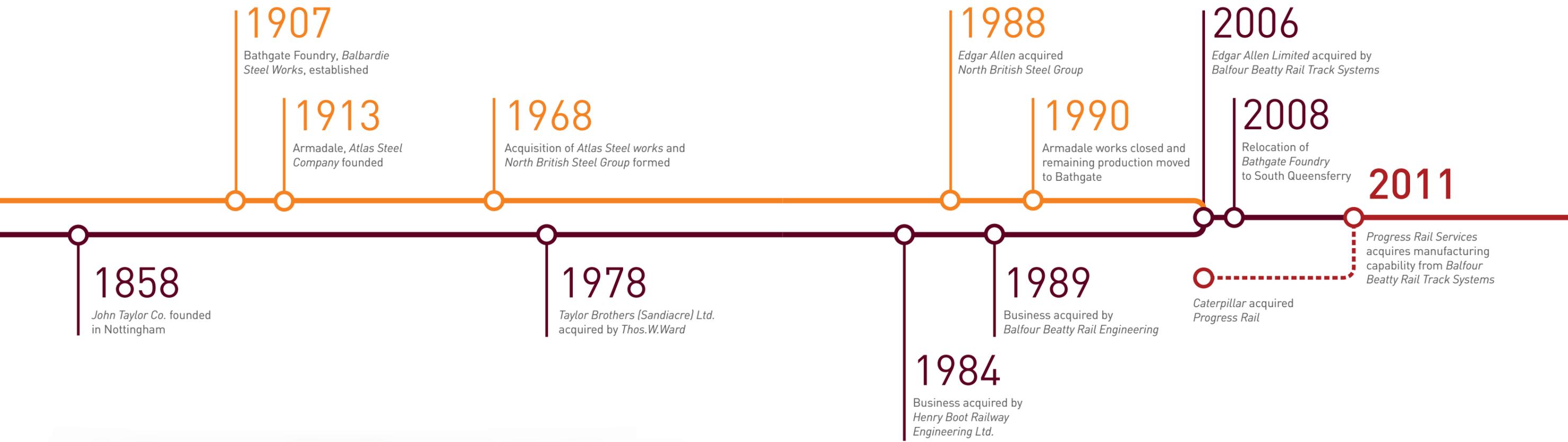


PRODUCTS AND SERVICES

from Progress Rail Services UK Ltd.



Over 100 years of manufacturing experience



Progress Rail, a Caterpillar Company, operates across five manufacturing sites in the UK: South Queensferry, Darlington, Sheffield, Sandiacre and Beeston. Safety, quality and people are at the heart of Progress Rail. As the UK's largest manufacturer of permanent way infrastructure, we specialise in the design and manufacture of permanent way switches and crossings and engineered products for mainline, freight, industrial and light rail customers in the UK and globally. Australia, Brazil and Hong Kong are just a few places where we export; for example, our 'flat-packed' Rectangle Hollow Section Buffer Stop is supplied around the world, as is our Hollow Steel Tie system.

Combining the best of Progress Rail Services Corporation and the best of Caterpillar to deliver the best value to you, our client



PROGRESS RAIL SERVICES CORPORATION

Progress Rail Services Corporation (Progress Rail), our immediate parent company headquartered in Albertville, Alabama, is a leading supplier of rail and track components and locomotive and railcar products and services to the global railroad industry. Progress Rail Services Corporation operates one of the most extensive rail service and supply networks in North America.

A CATERPILLAR COMPANY

Progress Rail Services is a wholly owned subsidiary of Caterpillar Inc. (NYSE:CAT).

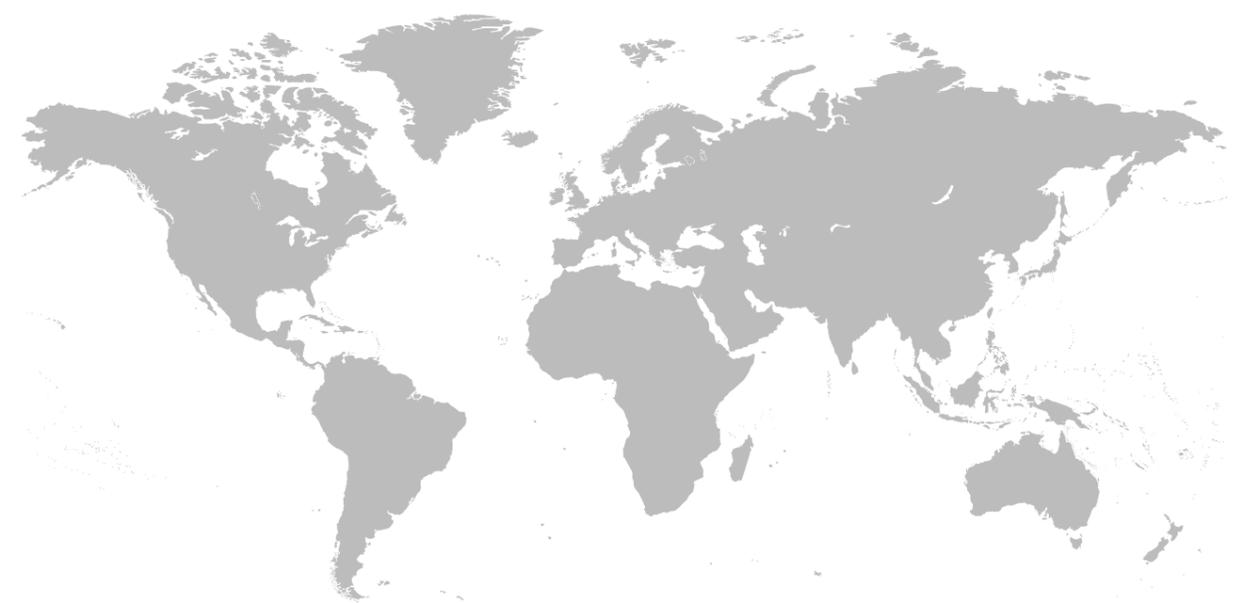
Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. The company principally operates through its three product segments – Resource Industries, Construction Industries and Energy & Transportation.

8,000 Employees

120,000 Employees

165 Locations

5 Continents

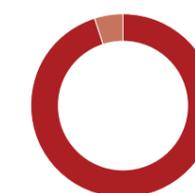


PROGRESS RAIL SERVICES UK LTD



26%

of our total sales are export



95%

domestically produced product

We align our actions with our words
and deliver what we promise



Excellence in Action

Our integrated approach to manufacturing provides a full, transparent service from design to delivery. Our aim is to work with you to exceed your expectations. As a Caterpillar Company, we work to a worldwide code of conduct;

SUPERIOR QUALITY

EXCELLENCE: Operating Lean manufacturing and world class 'Key-System' engineering processes, we offer the highest level of quality and product longevity, reducing operating costs and increasing rail company operational productivity. The quality of our products reflects the power and innovative heritage of Progress Rail UK.

HONEST SERVICE AND SUPPORT

INTEGRITY: We work closely with you to understand your needs and then tailor our products and services to meet them. We build strong collaborative relationships by delivering what we promise, on time and in full.

BEST FOR SAFETY

COMMITMENT: If something cannot be done safely or in an environmentally conscious manner, then we will not do it. We have a Vision Zero policy throughout the organisation and take the health of our employees extremely seriously, valuing a healthy workforce. We take responsibility for our environment to manage our business ethically.

UNRIVALLED EXPERTISE

TEAMWORK: Renowned world over for our products, our highly qualified team can undertake any task from simple to complex products or layouts and work closely with you to develop an understanding of your needs whilst utilising teams across five continents.

"Progress Rail Services UK focuses all our operations on five core values – Integrity, Excellence, Teamwork, Commitment and Sustainability. We pride ourselves on giving the best value, high quality with great customer service and support. We aim for the best safety and provide unrivalled technical expertise."

Tim Fenemore, Managing Director

We are committed to
building a better world

WE ARE COMMITTED TO BUILDING A BETTER WORLD

We promote safe work environments that use resources productively and efficiently, and contribute to employment and economic development in the communities where we live and work. As a Caterpillar Company, we leverage innovation and technology to create a competitive advantage by improving the sustainable performance of our operations and the products, services and solutions we provide to our customers. This positioning creates the unique opportunity to lead in solving challenges associated with resource availability as energy, water, land, and other natural resources become more constrained.

IN THE LOCAL COMMUNITY

We work closely with local schools to encourage and inspire the next generation of engineers. We are continuously striving to build relations in the local communities in which we operate.

WE APPLY ENVIRONMENTAL PRINCIPLES IN OUR DAILY WORK

Our employees focus on preventing waste, improving quality and developing better processes and systems to both improve efficiency and also reduce the use of materials, energy, land, and water in our offices and facilities. Our manufacturing success depends on the efficient flow of goods and materials from a streamlined supply chain to minimise environmental impact. We actively promote safe practices throughout our value chain – from suppliers to end-users.

SKILLS AND EMPLOYMENT

We invest heavily in skills and employment, offering great training opportunities to our employees and offer apprenticeship and graduate schemes.

Sustainability





PROGRESS FROM START TO FINISH

01

DESIGN

- We offer a bespoke consultancy service tailored to suit your needs, including Finite Element Analysis (FEA), Failure Model Effect Analysis (FMEA) and switch performance studies.
- Products are designed using state-of-the-art 3D CAD Software.
- Analysis consists of traditional calculations, Finite Element Analysis (FEA), practical testing and access to historic data from over 100 years of manufacturing experience.
- Casting is optimised for mould filling, metal solidification and cooling rates using computerised modelling techniques.

02

MANUFACTURE

- Five manufacturing locations each focused on specific products.
- Lean manufacturing is at the core of everything we do at Progress Rail, bringing best practices from our UK engineers, Track Engineering specialists in the USA and the Caterpillar Production System (CPS).
- CPS provides a structured framework from order-to-delivery, improving safety, quality and velocity, releasing latent capacity and improving efficiency to give best customer value.
- Our focus is to consistently deliver high quality, defect-free products to you.

03

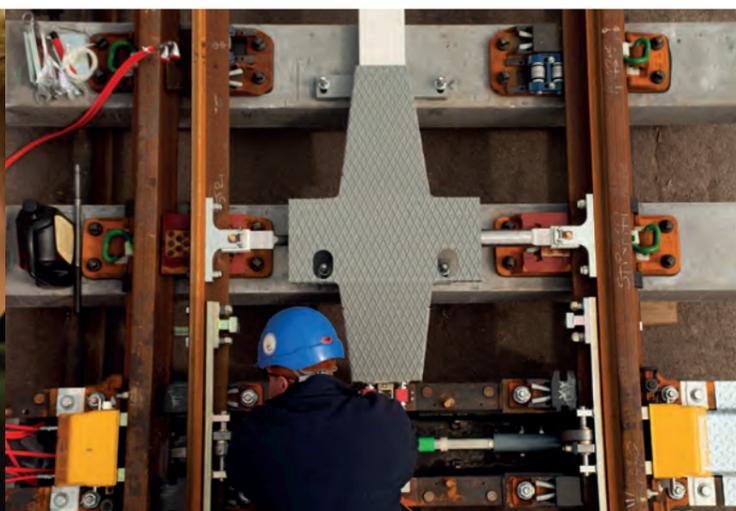
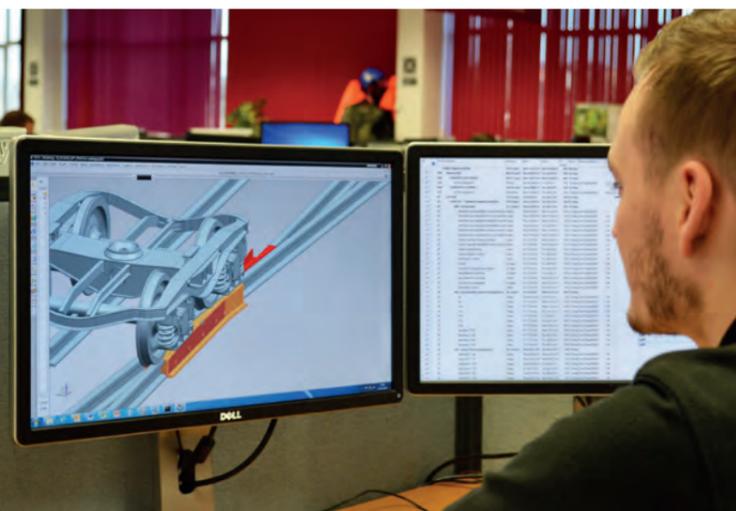
CUSTOMER MANAGEMENT

- We work collaboratively with our customers in order to exceed expectations.
- Our experienced teams comprise of dedicated product and project managers tasked with delivering customer requirements on time.
- We are a solutions provider assembling all of the constituent parts of our products across our manufacturing sites to minimise diverse interface risks.
- Our processes are built around delivering high quality products and we are certified to ISO9001 standards.

04

GLOBAL SUPPLY CAPABILITY

- Extensive experience at delivering Switches and Crossings and a wide range of permanent way components for mainline, freight, industrial and light rail customers in the UK and globally.
- We take care to plan our work and deliveries, to mitigate any external risks and maintain our commitment to you to deliver our products on time and in full.
- Our Switch & Crossing layout can be delivered modular or loose, by rail or road.
- We offer guidance to our customers on the packaging and shipment of our products in order to maintain product integrity throughout transportation.



Rail Products

Progress Rail UK has an established reputation for providing high quality rail products and services. Our full offering includes the design, complex manufacturing, sub-assembly and the final build of Switches and Crossings and modular turnouts. We manufacture products for a range of Switches and Crossings and turnouts (see below).

PERMANENT WAY LAYOUTS

- Turnouts for Mainline
- Turnouts for Heavy Haul
- Turnouts for High Speed
- Industrial Turnouts
- 3rd & 4th Rail Electrified Track
- Turnouts for Light Rail

SWITCHES AND CROSSINGS

- Shallow Depth Asymmetric Switch Rails – 600mm Long Switch Forgings
- Transition Rails
- Full Depth Vignole Switches for Mainline and Light Rail
- Expansion Switches
- Process: Heat Treatment for Head Hardened Forged Rail
- Swing Nose Crossings (frogs) High Speed and Heavy Haul
- Electroslag (semi welded) Crossings
- Fabricated (built up) Crossings

RAIL PRODUCTS FOR A GLOBAL MARKET

- We serve our clients with a portfolio of rail products and services for maintenance, renewal and enhancement projects.
- We have supplied to customers in UK, Europe, USA, Hong Kong, Australia, Brazil and many others.

PRECISION ENGINEERING

We have made significant investment in a precision engineering cell to give us the capability to manufacture automotive standard machined rail products such as the new tubular stretcher bar.



Cast Steel Products

Our business has developed and evolved to supply to a global market with light rail and heavy rail systems (railway crossings), mining shoes and security bollards. We have extensive in-house capabilities, including specialised metal production, heat treatment and x-ray capabilities, which all contribute to us being at the forefront of our market sector.

CAST CROSSINGS

- Cast Crossings for Mainline, Light Rail, Dockyard and Tram Systems
- Austenitic Manganese Steel (AMS) Monobloc and Centre Block Crossings (frogs)
- Rail Bound Manganese Crossings
- AMS Tram Point Bodies and Point Tongues

HEAVY HAUL HIGH STRENGTH SWING NOSE CROSSING CRADLES

- Castings for Heavy Haul Mining Railway Systems
- Process: Explosively Depth Hardened (EDH)
- In-Street / Urban and Light Rail Systems

MINING EQUIPMENT

- Track Shoes and General Engineering

SECURITY SOLUTIONS

- Manganese Security Bollards

WHY CHOOSE PROGRESS RAIL SERVICES UK FOR CAST STEEL PRODUCTS?

- Our cast steel products are produced in a state-of-the-art, world-class facility (opened 2008) employing lean production methods, reducing process wastes and achieving highest levels of quality.
- Austenitic Manganese Steel (AMS) monoblocs and centre blocks up to 12.5m in length, supplied both flash butt welded to rolled rail or fishplated, produced in accordance with National specifications and Rail Authority specifications.
- Explosively Depth Hardened (EDH) AMS crossings routinely manufactured to European and US hardness requirements for faster speed and reduced cost of ownership.
- AOD refined Bainitic steel for specialised rail and crossing use.*
- Cast Steel Security Bollards manufactured in compliance with British Standard PAS 68 for protection against vehicle attacks.
- Mining equipment produced through AOD Refined through hardened low alloy Nickel, Chrome, Molybdenum track/ crawler shoes up to 3 tonne finish weight.

* AOD (Argon Oxygen Decarburisation) ensures the integrity of our steel. Within Europe we are one of the few steel foundries to undertake secondary steel making using our 5 – 10 tonne AOD vessel, which is used to refine our arc furnace melted steel. Our AOD removes all the dissolved gases (nitrogen and hydrogen) picked up during arc furnace melting and lowers the sulphur to very low levels in our lean alloy Ni Cr Mo steels, which allows us to produce castings with a high base hardness (typically 415 BHN), but still with high impact properties at -40 °C. Additionally our AOD is routinely used to produce our low carbon (0.03 max), ultra clean stainless steel rails used to flash butt weld (FBW) our cast austenitic manganese crossings to rolled carbon rails.



Cast Iron Products

Established in 1858 by John Taylor, our Sandiacre based Foundry (previously known as the Midland Foundry) in Nottingham, now known as Cast Iron Products (CIP), is operated by Progress Rail UK and has been through many changes, but one thing that has remained unchanged for over a century, is the unrivalled quality of the castings supplied to the rail industry.

CIP is renowned throughout the world for producing grey iron, SG iron and compacted graphite castings.

10% OF PRODUCTS ARE EXPORT AND INCLUDE AN EXTENSIVE RANGE OF:

- Base plates
- Heel blocks
- Distance blocks
- Chairs
- Brackets
- Chogs
- Washers
- Clamps
- Anti-creep devices

OVER 16,000 CASTINGS AND PATTERNS

New patterns can be made to meet your unique requirements, including prototype developments, or existing patterns can be modified to suit.

WHY CHOOSE PROGRESS RAIL SERVICES UK FOR CASTINGS?

Quality, defined by:

- 2.9% wastage, low waste percentage evidencing the accuracy and reliability of our products.
- Metallurgy experts ensuring the integrity of castings for the switch and crossing industry.
- High customer satisfaction with our products and superior customer service.
- Increased capacity for on-time delivery.
- Wide range of patterns to suit all rail profiles.



Track Products

Established in 1860, our Darlington Track Products division is widely known for its experience in the machining and fabrication of complex components for the rail industry. The site has a long railway history since the first public railway, Stockton and Darlington Railway (S&DR) once ran through the site.

PERMANENT WAY TRACK MATERIALS

- Cable Crossing Sleeper (Tie)
- Buffer Stops
- Cast and SG Iron Trackwork Components
- Stretcher (spreader) Bars
- Tubular Stretcher Bars

PERMANENT WAY SWITCH SYSTEMS

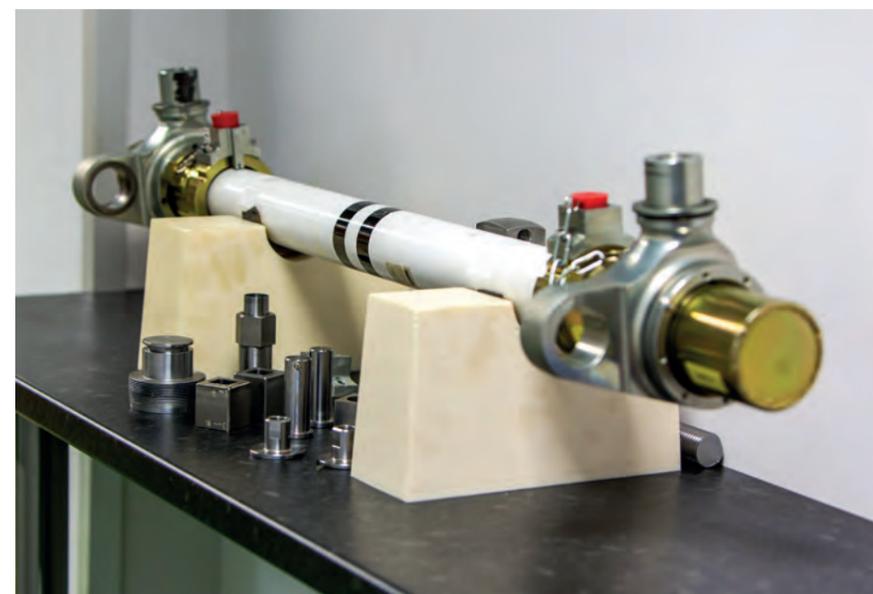
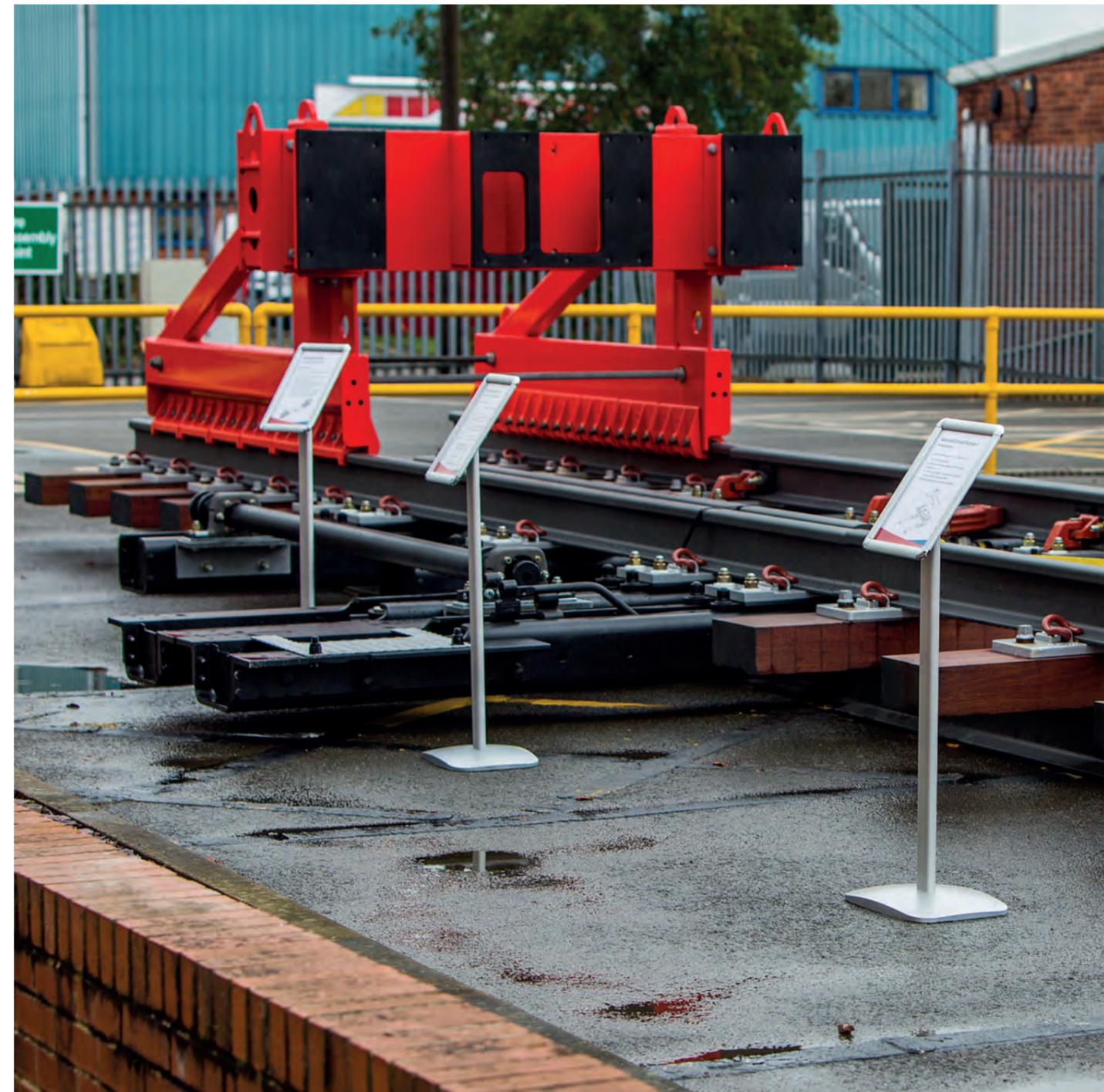
- Hollow Steel Bearer (Tie) Primary or Supplementary Drive Positions
- Hollow Steel Bearer (Tie) Swing Nose Crossing Applications
- Hollow Steel Bearer (Tie) Mechanical Supplementary Drive Positions
- Hollow Steel Bearer (Tie) Manual Switch Stand Applications
- Tubular Supplementary Drive (Type: PRS12) London Underground Ltd
- High Performance Switch System (HPSS)
- Switch Locks
- Lever Boxes & Switch Stands

PROVEN MANUFACTURING TECHNIQUES

The Track Products division uses proven manufacturing techniques to produce intricate, well engineered products. It plays an important role in the introduction of new product prototypes within Progress Rail UK.

WHY CHOOSE PROGRESS RAIL SERVICES UK FOR TRACK PRODUCTS?

- Proven manufacturing techniques available for the machining and fabrication of a range of complex components.
- A skilled workforce with a long term history in the industry, accomplished at what they do.
- High quality levels and low scrap rates in the production of critical components.
- Adoption of Lean manufacturing techniques to continually improve process efficiencies and increase throughput.
- Management of a portfolio of subcontractors – giving a 'one-stop-shop' for operations such as galvanising, powder coating, metallic coatings and heat treatment.



Overhead Line

Progress Rail UK supplies a range of Overhead Line structures from our Track Products division in Darlington to meet various customer design requirements, supporting the growing demand for electrification in the UK.

PERMANENT WAY CATENARY STRUCTURES

- Column & Base Structural Steelwork Masts
- Planted Masts
- Double Channel Masts
- Four Angle Masts
- Small Part Steelwork (SPS)
- Twin Track Cantilevers (TTC)
- Foundation Piles
- Portal Bridges
- Bridge Sections
- Cast Iron Parts and Balance Weights

WHY CHOOSE PROGRESS RAIL SERVICES UK FOR OVERHEAD LINE?

- We work closely with our material suppliers and galvanisers to deliver reliability and give best value.
- We have experience in meeting a range of design solutions for the Overhead Line market.
- We envisage our portfolio of Overhead Line products to increase to meet growing demand, and are working closely with customers to develop this range.



Technical Services

Our team of Chartered and Graduate Engineers from mechanical, metallurgical and aerospace backgrounds have wide ranging experience of railway track work product and system development, design and manufacture. We develop new products and optimise existing ones for clients around the world – including several national infrastructure owners. We consider risk management a fundamental aspect of good design, and we use industry best practice engineering safety management principles in all of our development work.

OUR KEY SERVICES AND CAPABILITIES INCLUDE:

- Switches, Crossings and Turnout Design
- Switch Performance Optimisation
- Cast Manganese Product Modelling Methods and Metallurgy Optimisation
- Crossings can be supplied solution treated or explosively depth hardened to suit your needs
- Molten Metal Mould Filling and Solidification Using Specialist Software
- Efficient New Product Development and Introduction
- Wheel Rail Interface Optimisation and Structural Integrity Optimisation, which reduces maintenance and extends service performance

PROVIDING A TECHNICAL SERVICE

Over and above using our technical capability to support and develop our production programme, we can offer a range of skills and expertise to support our clients development of specifications and products. For more information about our technical services, please contact prsuk.sales@progressrail.com.

SWITCH PERFORMANCE OPTIMISATION

Using our in-house analysis tools, we can fine tune the flexural behaviour of switch rails – increasing reliability through reducing the effort required from the points operating equipment to position the rails.

MECHANICAL ANALYSIS

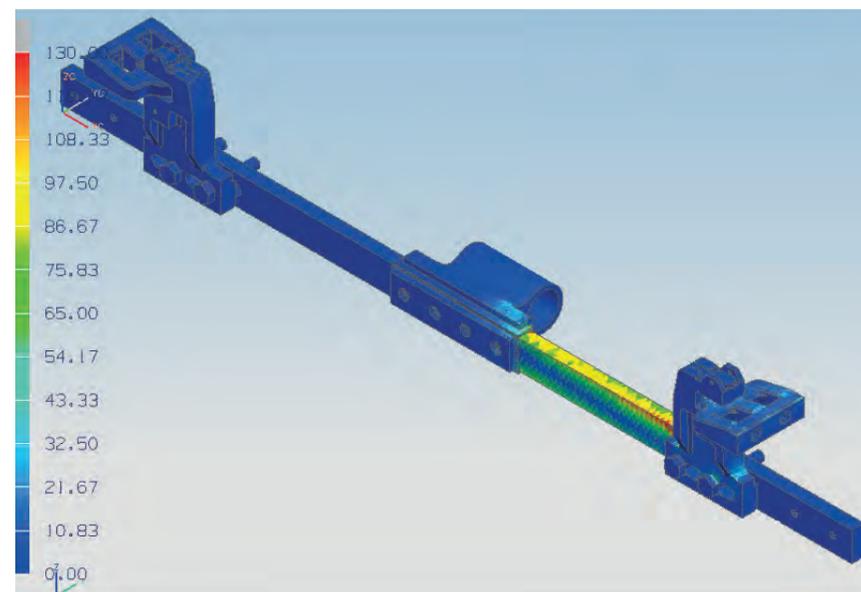
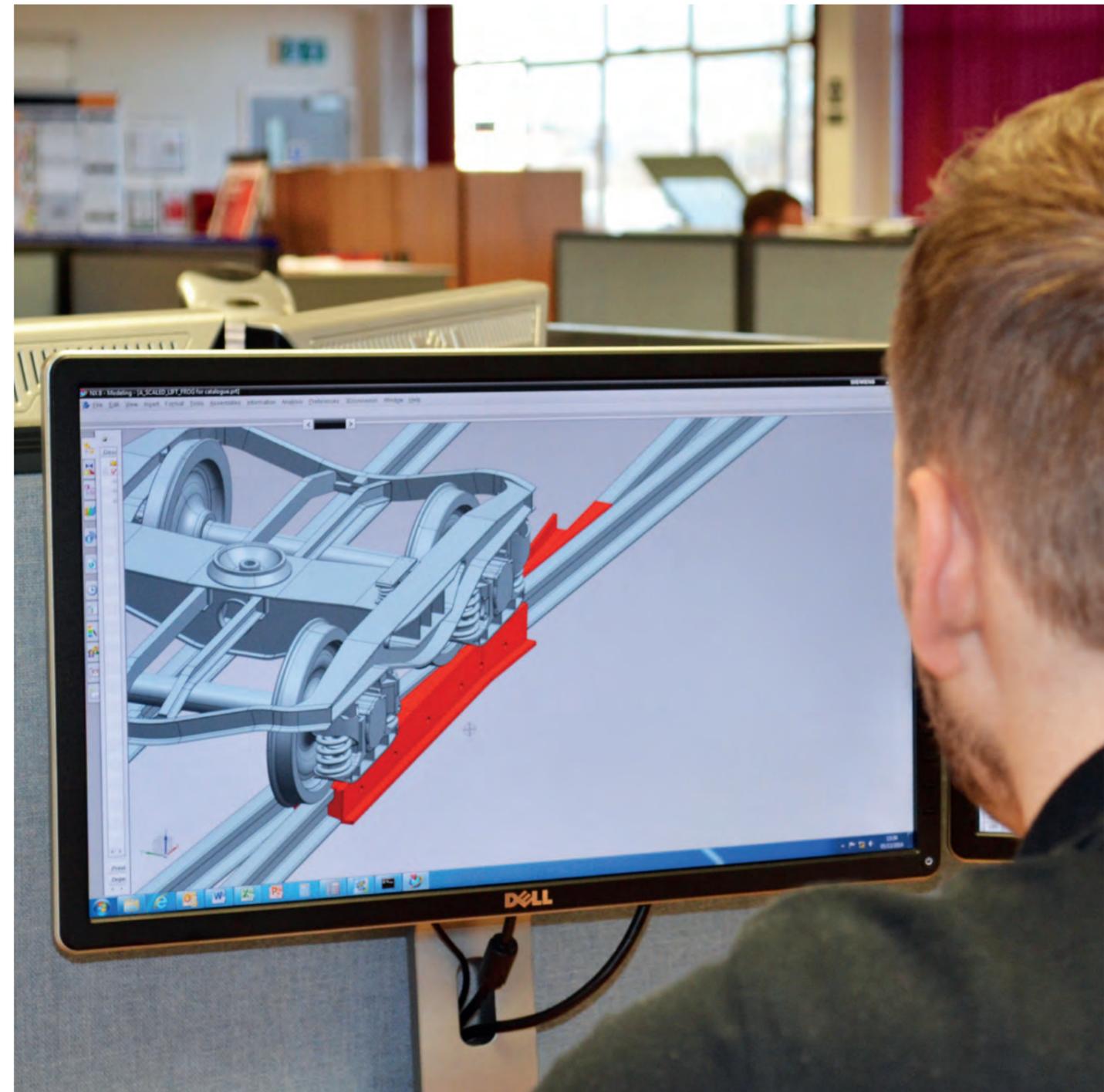
Assessment of product lifecycle, expected performance and operation and maintenance requirements using; classical techniques, Finite Element Analysis, practical testing and empirical data from over 100 years of manufacturing experience.

PRODUCT DESIGN

Using our 3D CAD software, we create and assure product designs that are optimised for manufacture. Our designers are experienced in products suited to the demands of a wide range of railway environments.

CAST MANGANESE PRODUCTS

Modelling, Machining, Methods and Metallurgy: Our engineers have the tools, skills and experience to design cast manganese products from concept through all stages of the manufacturing process to deliver geometries and structures that exceed the criteria expected of them from rail standards around the world.





A Collaborative Approach

At Progress Rail UK, we seek to work collaboratively with our customers, and we have a proven track record in meeting diverse requirements.

An example of this approach is the provision of modular Switch and Crossing layouts, which enables complete panel loading onto tilting wagons (shown in the pictures). This process reduces supply chain costs and maintains both product quality and integrity throughout the delivery process and facilitates timely opening to normal traffic post installation. Through collaboration on the introduction of 'Modular' S&C the time for installation has been dramatically cut – significantly reducing disruption to the passengers.

Five manufacturing sites across the UK

SOUTH QUEENSFERRY

Headrig Road, South Queensferry,
West Lothian, EH30 9SH, Scotland

DARLINGTON

Dumfries Street, Darlington,
DL1 1LB, England

SHEFFIELD

Shepcote Lane, Sheffield,
S9 1QW, England

SANDIACRE

Osmaston Street, Sandiacre,
Nottingham, NG10 5AN, England

BEESTON

Boulevard Industrial Park, Beacon Road,
Beeston, Nottingham, NG9 2EY, England

Contact

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