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**KEEPING THIS WORLD MOVING**  
Our newest product solution for disruption management

# Velocity

ISSUE 3 DECEMBER 2017

NEWS FROM L.B. FOSTER EUROPE

**LB Foster**<sup>®</sup>

"The scope of the SISS element of our work at Farringdon included installation of C660 communication and control systems, installation of SISS assets, CCTV, Customer Information Systems, telephony, SCADA, PAVA, PHP, radio and fibre networks."

Lee Kempston  
Senior Project Manager  
L.B. Foster Telecoms



Elizabeth Line Farringdon Station

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### THE SEARCH IS ON

We have teamed up with the Institute of Mechanical Engineers to find the best thinking in mechatronics

Throughout 2017 we have continued to align our operations to short and long-term local and international business opportunities. We have achieved notable successes, securing major new contracts in the UK, European and global rail, automation and energy markets.

Since our acquisition of the TEW Group, we have invested a great deal of time and resource in developing our brand and articulating what we stand for in a clear and concise way.

'Keeping our world moving' captures perfectly the spirit of L.B. Foster Europe. We keep our world moving through inspirational engineering solutions. We are a dynamic business, always looking at ways to align what we do with the many markets that we serve. That means we are not afraid of change. Since the last issue of Velocity earlier this year, we have continued to challenge our fitness for purpose.

Our three European divisions are now six, aligned to our service and product solutions, clearly communicating each business's specialism.

L.B. Foster Automation now adds Materials Handling to its name, to reflect our experience, expertise and strong market position in this segment. Our Control, Display & Security division now divides into Control & Display Solutions and Telecoms, demonstrating the expertise inherent in each business. Furthermore, our specialist technology developer, L.B. Foster Netpractise, also now stands proud, providing inspirational digital signage, customer flow, wayfinding, asset management and asset maintenance solutions.

Alongside our structural changes, we have been busy planning and executing the design, development and roll-out of our new web estate. This brings together all of L.B. Foster Europe's websites in a single location [www.lbfoster.eu](http://www.lbfoster.eu). The site is now live, along with a dedicated website for each of our six operating divisions.

New product and service developments continue to expand our comprehensive solutions portfolio. Inform by L.B. Foster, is the newest addition to our compelling Control & Display Solutions category. It is an innovative, totally wireless, rechargeable and fully mobile information totem. It was rolled out at London Waterloo station for a video shoot to demonstrate its portability and quickly captured the imagination of key station personnel, consultants and specifiers.

I hope you enjoy catching up with all the latest news in and around L.B. Foster Europe.

Peter Jones  
Managing Director



inform<sup>®</sup>  
by LBFoster

The first of our unique Inform Totem Systems, the Inform Disruption Management Display is a completely self-contained, wireless solution to mobile information messaging.

See page 08 for more information

01

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Rail Technologies, Sheffield

### Chartered Status

Mathew Holland, Head of Engineering at L.B. Foster Rail Technologies, achieved coveted Chartered Engineer status earlier this year.

Chartered status is a key step in a professional engineer’s career. Mat has devoted many years of effort to achieving Member of the Institute of Mechanical Engineering and the title ‘CEng’ that demonstrates his professional standing.

Mark Aston is Chief Technical Officer for L.B. Foster Europe. He says: “Congratulations to Mat on achieving this key professional milestone. I would encourage all of our engineers to work towards becoming a member of a professional institution and achieving chartered status.

“It is an accomplishment that means the individual has been benchmarked against, and in all likelihood exceeds, the best professional standards in their profession. This is a source of pride for both the individual and the company alike. Well done Mat.”



Control & Display Solutions, Nottingham

### Ray’s Moving On

After more than 40 years of service to the TEW Group and L.B. Foster, one of our longest standing employees has retired.

Ray Dalgress started out with the company in 1975 at then TEW Engraving Limited as a cutting shop machinist. A man of many talents, Ray went on to work at Caliba, before moving across to the TEW Group in Lenton.

A lifelong Nottingham Forest fan, Ray was one of the lucky ones to see the club lift the European Cup. He’s now looking forward to spending more time indulging his passion at the City Ground in the hope the club can replicate its former successes.

Phil Chester joined Ray on his retirement day to thank him for his outstanding long service: “In the nicest possible way, Ray is part of the furniture at L.B. Foster. I’ve known him virtually my whole working life and you couldn’t meet a nicer man. He will be missed and we all wish him well, although if he’s after a stress-free retirement I think he should seek an alternative past-time to watching Forest!”

On our Facebook page Ray’s popularity was summarised by Andy Wilson who said: “A star man. Brightens the day”.

L.B. Foster Europe, Sheffield

### Marilyn Heads up HR

We have a new face heading up our Human Resources team. Marilyn Coulton joins L.B. Foster Europe as Head of Human Resources, based out of our Sheffield office.

Marilyn previously worked at Eaton, a power management company with 2016 sales of \$19.7 billion. She is a member of the Chartered Institute of Personnel and Development. Commenting on her new post, she says: “This is an exciting opportunity, which I’m relishing. I’ve been in and around the business since April, getting under the skin of the organisation and meeting many of our people.

“I’m looking forward to developing the skills and competencies of our people through robust training programmes, be that by internal mentoring and coaching, or external training bodies. As an HR team, we will engage and listen to what our colleagues are saying, acting on issues and concerns, creating a stronger workforce that will engage with L.B. Foster’s visions and values.

“I’m also keen to improve our communication channels and hope that each employee will see the contribution they are making, which in turn flows out to our customers. This will be a great achievement. I would like every employee to feel they can make a positive contribution to L.B. Foster’s success and that can only be achieved if we involve everyone, talk to everyone and if we listen to everyone, and we act positively.”



L.B. Foster Telecoms

### New London office

We are on the move to new offices near Finsbury Circus. This consolidates our London Telecoms business all under one roof.

Our new address is:  
Salisbury House  
Offices 17-19  
29 Finsbury Circus  
London  
EC2M 5QQ

Tel: +44 (0) 20 7374 6105



L.B. Foster Company

### Group CEO Visit

Bob Bauer paid a visit to Nottingham on his recent stop over for our Quarterly Business Review. He joined Dr Mark Aston (left) who explained about our control panel capability and solutions for the rail and energy sectors.

Whilst in the UK Bob received an update about the work we are involved in on Crossrail and how our businesses are working together to deliver innovative, end-to-end engineering solutions across the markets we serve.

L.B. Foster Europe

### New Web Estate Goes Live

A new suite of L.B. Foster Europe websites is now live online at [www.lbfoster.eu](http://www.lbfoster.eu).

Each of our operating divisions has its own website, alongside a new L.B. Foster Europe corporate portal, featuring live video on its home page and with links to the divisional service and solutions sub-sites.

The new sites have been designed using the latest web technology and are fully mobile responsive, giving visitors using mobile devices a high quality user experience.

Phil Chester is Head of Marketing at L.B. Foster Europe: "Our new web estate is a powerful online presence for the business and I'm very proud of what we have achieved. We have spent some considerable time developing this class-leading

online experience. It brings together all of our businesses in one super site, showcasing our end-to-end engineering solutions. Now our customers can see the breadth of our offer and the scale of our business. It's a game changer for us and for the sectors we serve."

Each site incorporates flexible architecture designed to be visually engaging, yet simple to navigate. Content includes latest news, social media and project case studies, as well as interactive maps to plan your visit to each of our offices. Our GmbH site is in German for native language visitors, with a translation option as required.

Phil Chester continues: "We are now working to carry over all the search engine equity that our old sites hold into our new sites. This will involve an ongoing process of site optimisation so that our businesses and our solutions will rank highly in search engines."

### See us online

L.B. Foster Europe  
> [www.lbfoster.eu](http://www.lbfoster.eu)

- Our divisional website
- > Automation & Materials Handling
  - > Control & Display Solutions
  - > GmbH
  - > Netpractise
  - > Rail Technologies
  - > Telecoms.



## As we move forward into 2018 we have fine-tuned our operational structure, creating a business that is fit for purpose and which reflects our innovative service and product solutions, aligned to the core markets in which we operate.

Since our acquisition of The TEW Group at the end of 2014, we have been working to create an operational structure that is tuned to the needs of our customers. We have further segmented our proposition so that what we offer is now closely aligned to our customers' procurement processes and procedures and presented in a way that makes sense to them.

L.B. Foster Europe provides overarching corporate strategy and governance, with six customer-facing operational divisions:

- > L.B. Foster Automation & Materials Handling
- > L.B. Foster Control & Display Solutions
- > L.B. Foster GmbH
- > L.B. Foster Netpractise
- > L.B. Foster Rail Technologies
- > L.B. Foster Telecoms.

In parallel, we have been promoting how our inspirational, joined-up engineering capability delivers end-to-end solutions for our customers in rail, energy, automation and materials handling. Take our involvement in the new Elizabeth line project in London as a case in point. Solutions delivered by L.B. Foster Telecoms, L.B. Foster Control & Display Solutions, L.B. Foster Netpractise and L.B. Foster Rail Technologies are all being applied on the new 100 kilometre Crossrail project.

L.B. Foster Telecoms solutions, including Station Information & Security Systems (SISS), Building Management Systems (BMS), Public Address Voice Alarm and CCTV feature at each of the 10 new Elizabeth line

stations, alongside Netpractise Customer Information Systems (CIS) and media advertising screens. Our Rail Technologies division is delivering innovative friction management solutions, as well as supplying our comprehensive range of high quality track components. Completing the end-to-end solutions is L.B. Foster Control & Display Solutions Driver Only Operation (DOO) hardware, including fold down camera posts, wind up/wind down monitor stacks and bespoke brackets.

Our Automation & Materials Handling business is delivering exceptional integrated solutions to the automotive, food and beverage, manufacturing, warehouse and logistics sectors. Our joined-up thinking means we are able to design and deliver innovation from the factory floor to the factory door, adding value throughout the process.

As we head into 2018, L.B. Foster Europe is growing its footprint in new and existing markets through its added value, integrated, end-to-end solutions. Each of our divisions is developing its reputation for excellence and innovation. The business has a burgeoning pipeline of opportunities and is building strong commercial relationships throughout the supply chain.

# Focused on o

## **LB Foster**

Automation & Materials Handling

We specialise in the design, build and supply of systems and machines to precisely suit global manufacturing and production demands. This is achieved through the intelligent application of materials handling and conveyor technologies, combined with automated assembly, test and robotic technologies.

## **LB Foster**

Netpractise

We are a specialist technology developer providing digital signage, customer flow, asset management and asset maintenance solutions. Applications include hospitals, local authorities and logistics, as well as rail and bus.

## **LB Foster**

Control & Display Solutions

We are a specialist technology provider for the transit, control room and customer information and display sectors. Our control panels are used daily in signalling control centres, as well as in critical infrastructure such as the oil, gas and power industries. Our specialist data collection and analysis capability delivers bespoke Operational Management Solutions for blue chip clients.

## **LB Foster**

Rail Technologies

We are a specialist, end-to-end supplier to the European rail sector. Our performance critical engineering solutions fulfil an essential role in maintaining the safe, secure and reliable daily operation of rail networks across the continent.

## **LB Foster**

GmbH

We deliver innovative solutions in the field of rail friction management, as well as a comprehensive range of high quality, proven in service track components for the global railway industry.

Our sales office in northern Germany acts as a gateway to our innovative Control & Display Solutions for our mainland European customers.

## **LB Foster**

Telecoms

We deliver exceptional innovation in telecoms design, providing and installing SISS, BMS, CCTV, PAVA and CIS solutions in the transit and energy sector.

# ur customers

## Renaming our division to reflect our broader proposition sees the birth of L.B. Foster Automation & Materials Handling; a merger of expertise and experience that is driving the business forward.

Hand-in-hand with our strategic renaming, we are further strengthening our position in automation and materials handling with three key new appointments.

Mark Stamford, aged 47, joins the business as our new Head of Automation & Materials Handling, Chris Brown takes on the role of Head of Sales and Alex Morgan is our new Technical Manager.

Peter Jones, Managing Director, L.B. Foster Europe, says: "These are key strategic appointments for our automation and materials handling businesses. They are intended to build upon our reputation for excellence in developing innovative solutions in automated engineering and conveyors.

"Mark is hugely experienced, having managed business units up to €100m in size, with full Profit & Loss and strategic planning responsibility. L.B. Foster Automation & Materials Handling is a rapidly expanding business operating in exciting markets, including the buoyant global automotive sector. We're looking forward to supporting Mark and his team as they implement this exciting vision for the future of the business."

Previously Mark was Head of Modernisation & Upgrades at Siemens Industrial Turbomachinery in Lincoln. Prior to working for Siemens, Mark was employed at the Boulting Group, a multi-disciplinary engineering solutions provider, operating in a diverse range of industry sectors in the UK and internationally. He comments: "I am delighted to join the team at L.B. Foster Europe. L.B. Foster Automation & Materials Handling is a fascinating business that creates extraordinary automated engineering solutions for the automotive, food and beverage, and warehousing and logistics sectors."

Chris Brown joins as our new Head of Sales. Chris has over 20 years experience working in the automation and bespoke engineering equipment markets. He joins following his success developing medium to long-term business growth strategies for technology company FLIR System's Automation Division.

Chris says: "I could not ask for a better existing commercial team to work with. They are all talented, technically and commercially competent people and, most importantly, enthusiastic for development and growth. I am looking forward to working with the management team in actioning our long-term strategic plan".

Alex Morgan is a highly experienced technical leader, with an extensive background in managing engineering teams, product design and development, product support and managing complex change projects to meet strategic objectives within critical deadlines.

Alex says: "I have experienced both sides of technology development and post-sale customer support, which are key components of L.B. Foster Automation & Materials Handling's business needs."

# Strength in depth



"We are extremely proud of our ability to keep up with the pace of change required to support our customers' innovation expectations."

Mark Stamford, new Head of Automation & Materials Handling







**We enjoy a successful track record working with IAC Group Limited. Previous collaborations include the design of an innovative automated headliner assembly inspection solution for the automotive sector.**

So we were its partner of choice when IAC was approached by Jaguar Land Rover to develop automated door assembly and inspection machines for its new Land Rover Discovery. IAC has more than 160 years of automotive interiors technology expertise. The company is a Tier One automotive manufacturer supplier and partners with engineering solutions specialists to deliver automated manufacturing capabilities.

Peter Philips, IAC Group Limited, says: "This really was a case of starting with a blank piece of paper. We worked closely with L.B. Foster Automation & Materials Handling to create a smart engineering solution that automates the door assembly and, at the same time, delivers a range of complex inspection checks."

IAC's specification for the new Land Rover Discovery door assembly and inspection units included a number of sophisticated functions as standard, as well as some 'nice to haves'.

Our solution considered the best way to deliver the required functionality, whilst incorporating added value features and operational innovations as standard. As the specification developed, we worked in collaboration with IAC to deliver best in sector solutions. Among the 'added value' capabilities designed into our solution is the ability to rotate each door automatically, whilst clamped in the machine, allowing operatives to work on both the A and B surface of the door without the need to manually rotate doors.

We also modified the design of the switch pack within the door assembly to include additional vision sensing and moving bracketry to ensure the area is covered through the assembly process.

# Artificial Intelligence

## Market view

The automation and materials handling market is buoyant, providing a strong pipeline of opportunities stretching into 2018 and beyond.

We are focused on our capability to deliver end-to-end solutions. This is a proposition that resonates with our customers, enabling them to enjoy a single touch point for the design, delivery, testing and commissioning of often complex engineering solutions. Over and above this, we also provide ongoing maintenance and service support, delivering true peace of mind for our customers.

Our specialist capability delivering mission critical safety solutions in explosive environments is setting us apart from our competitors. We are installing ATEX compliant main fill line conveyors for Bushmills and roller and chain conveyors for William Grants & Sons, providing safe, secure operation in hazardous conditions.

We are also dominant in Europe's successful automotive sector. Inspirational automated manufacturing processes are second nature to our expert team of electrical and mechanical engineers. We supply automated manufacturing and testing equipment to Tier One suppliers for brands including Jaguar Land Rover and BMW.

Sales from the automotive industry are a vital part of our business. Innovation in this market sector is heavily driven by the demand for ever more artificially intelligent (AI) and environmentally friendly vehicles. We are extremely proud of our ability to keep up with the pace of change required to support our customers' innovation expectations.

As a business, we provide the innovation which enables 'continuous automatic production' - a phrase born from the 1950s but which resonates today with customers who are looking for a complete end-to-end automation and materials handling solution.

I see 2018 as the start of something exciting for L.B. Foster Automation & Materials Handling. We have an exceptional team in place, equipped with the skills and desire to succeed and a solutions portfolio that delivers time and time again for businesses large and small.

Mark Stamford  
Head of Automation & Materials Handling

The first of our unique Inform by L.B. Foster Totem Systems, the Inform Disruption Management Display, is a completely self-contained, wireless solution to mobile information messaging.

# Keeping this world moving

Inform by L.B. Foster is the first battery powered totem display with wireless technology for station management in times of disruption. It has been designed, developed and manufactured by our team of Control & Display Solutions experts in Nottingham.

Inform by L.B. Foster does just that, keeps people informed about disruption whenever and wherever it happens. That's because the mobile unit can be placed where it is most visible so that commuters and passengers can see critical information in real time.

Our new totem makes best use of the latest in high definition video displays and is capable of running for 24 hours on a single charge of its built-in batteries. Our dual screen model has a 12 hour charge capacity.

Options for Wifi and 3G/4G mobile communications allow this unique display to connect to a variety of information systems. Local station manager messages can be displayed, along with train departure information. Even rainbow boards for other transport systems, such as London Underground, can be integrated within the totem display screen.

Inform by L.B. Foster range of displays, including the Disruption Management System, are fully Section 12 compliant with the use of low smoke and fume components and sealed IP67 enclosures allow the unit to work inside or outside in any weather.

Inform by L.B. Foster is also a mobile, wireless solution for:

- > customer information
- > wayfinding
- > rainbow boards
- > advertising
- > information points
- > next train indicator.

For further information contact Dagan Bradbury  
[dbradbury@lbfoster.co.uk](mailto:dbradbury@lbfoster.co.uk)



CGDS



# Market view

**We continue to benefit from investment in major UK infrastructure projects, such as Crossrail and transit hub projects, including London Waterloo.**

Our experience and expertise is underpinned by our reputation for delivering on time and on budget. That's good news for us as we look to exploit future opportunities, such as Crossrail 2 and HS2, as well as the proposed rail link for the Northern Powerhouse, with our extensive portfolio of control and display solutions.

Our capacity to constantly innovate is expressed in our newest engineering innovation. Inform by L.B. Foster is a game changer in the disruption management market. It is the latest addition to our comprehensive range of control and display solutions for the rail and energy markets.

Investment in critical energy infrastructure in developing markets continues, providing opportunities for our Mimic Display, Video Display, Control Room and Control Panel solutions.

Neil Sheffield  
Head of Control & Display Solutions

# Signalling intent at Waterloo

**Network Rail is investing £800m to improve and increase the capacity of London Waterloo, Britain's busiest station and one of the country's most used railways, with a programme of works from 2015 to 2018.**

Central to the project's success is a major signal and control panel upgrade at Wimbledon Junction in South London. The upgrade involves the complete redesign and reconfiguration of existing signalling to accommodate the 30 per cent increase in capacity that will help London Waterloo accommodate passenger growth well into the middle of the 21st Century.

The Wessex Capacity Alliance (WCA) comprises five partner organisations; AECOM, Colas Rail, Mott MacDonald, Network Rail and Skanska. The Wessex Capacity Alliance (WCA) selected L.B. Foster to design, implement and commission the new signalling and control panel project at Wimbledon Junction.

Chris Mayhew is Programme Systems Integration Manager at Skanska UK. Chris explains: "The Waterloo and South West Upgrade project is one of those major infrastructure investments designed to future proof services for a generation.

"It's so far reaching - from redeveloping Waterloo station into a modern, 21st Century transport hub, introducing longer platforms and longer trains - to the application of new technology to make trains more efficient and improve punctuality. That's where L.B. Foster fits in. The new control panel changes are mission critical to this project."

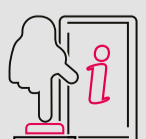
Our role in the renewal project involved modification and rectification work to the Control & Indication Panels at Wimbledon Area Signalling Centre.

Senior project manager, Nigel Dobney, says: "We've built positive relationships with all members of the Wessex Capacity Alliance. That has helped us to understand the scope of the project better. We developed a robust installation strategy that instilled confidence in WCA that the panel works would be delivered and installed in a professional and timely manner.

"The overall scope of the brief changed so much that it's almost unrecognisable, but that's where our expertise, experience and innate understanding of the control panel and signalling environment kicks in. We're working with legacy systems that we know as we've had experience working on similar systems over the years. This familiarity has been invaluable in developing the blueprints for the new configurations."

Chris Mayhew continues: "L.B. Foster's team has been faultless. They have been involved in every decision and every redesign, delivering creative solutions to complex challenges. Whenever we have called upon them to respond they have responded and delivered over and above expectations."

For further information contact Nigel Dobney  
[ndobney@lbfoster.co.uk](mailto:ndobney@lbfoster.co.uk)



# Market view

We continue to supply major projects in the European rail sector, whilst building strong strategic partnerships with key suppliers and network operators.

Our five year agreement with Knorr-Bremse, covering the exclusive sales and distribution rights for our wheel flange lubrication systems and related consumable products, is delivering solid returns. This is supplemented with high demand for level crossing safety and friction management solutions, which provides opportunities for further market growth.

Keith Churm  
Head of GmbH

L.B. Foster GmbH is our specialist rail technologies division based in Herne, Germany. Among the raft of innovative rail solutions we bring to the European rail markets is our KELTRACK® On Board (KOB) mobile top-of-rail friction management solution.

This advanced technology can be installed onboard a freight car or locomotive and applies KELTRACK® friction modifiers to the wheel/rail interface.

Using our AUTOPILOT system, GPS controls automatically adjust product application rates to optimise the friction levels at the wheel/rail interface. This flexible control technology can incorporate geo-fencing, as well as normal operating inputs, to create a customised application strategy. These mobile systems are customised specifically to fit any car or locomotive and aim to maximise tank volume capacity to meet the service needs of our customer.

The AUTOPILOT system is also supported by Remote Performance Monitoring (RPM) technology. RPM is a powerful tool that enables our customers to manage critical control settings to ensure optimal performance.

RPM proactively manages the lubrication equipment by monitoring and reporting uptime, maintenance concerns and refilling requirements. The technology also facilitates advanced maintenance and filling programs by predicting when the equipment is arriving at the maintenance site, so refilling can be completed within typical yard dwell times keeping your rail operations on schedule.



# Get onboard with friction modifier



# End-to-end Solutions

We are on a mission to make things simpler and more intuitive for our customers. We are doing that by creating inspirational engineering solutions that work across our businesses. Take Inform by L.B. Foster, our new information totem, as a shining example.

Inform by L.B. Foster has been designed, developed and manufactured by L.B. Foster Control & Display Solutions as an answer to customers looking to put information front and centre, wherever and whenever it's needed. So where does L.B. Foster Netpractise fit in? We develop the innovative software solutions that are used to deliver information via our new mobile totem. This includes software for:

- > customer information
- > wayfinding
- > rainbow boards
- > advertising
- > information points
- > next train indicator.

The intelligent Content Management System (CMS) is another of our smart technology solutions, giving Inform by L.B. Foster that competitive edge over the competition. Display content can be updated on the go from a tablet or laptop. That means information is up-to-the-minute with updates made live in real time.

Graham Kett heads up L.B. Foster Netpractise's technical support team. He says: "By getting around the business we are able to share our expertise and deliver compelling solutions that combine engineering excellence with innovative applications of information technology. This is a great example of how we are developing new products and service solutions that are opening up new market opportunities across the group.

"Inform by L.B. Foster has so many potential uses - from helping people find their way around large cruise ships to providing information updates at festivals. But our initial focus is in the markets we already know and serve, namely rail disruption management. It has been very well received to date and we're looking forward to seeing our totem being rolled out on platforms around the UK."

For further information contact Graham Kett [gkett@lbfoster.co.uk](mailto:gkett@lbfoster.co.uk)



## Market view

Throughout 2017 we have been busy developing our Fingerprint asset maintenance solution for new applications that we will reveal in the next issue of Velocity.

Fingerprint has been well received in the bus and coach market, with considerable media interest, which we have complemented with our own advertising campaign. Fingerprint Asset Maintenance is targeted at engineers and asset maintenance staff, putting them in charge of making the right decisions. We see this developing further, with new applications in a range of different markets.

Damian McCracken  
Technical Operations Manager



Tackling friction and lubrication issues underground and overground on the Crossrail project in London is one aspect of L.B. Foster Rail Technologies' involvement supplying solutions to ATC, a consortium of Alstom, TSO and Costain, which won Crossrail's €350 million railway systems fit-out contract

# Underground, overground, friction free

Tackling friction and lubrication issues underground and overground on the Crossrail project in London is one aspect of L.B. Foster Rail Technologies' involvement supplying solutions to ATC, a consortium of Alstom, TSO and Costain, which won the €350 million railway systems fit-out contract.

L.B. Foster Rail Technologies' team of solutions engineers in Sheffield has created a new, wall-mounted friction management solution specifically for installation in the new tunnels. Fifty two specially designed, high capacity PROTECTOR® IV electric lubricators have been specified by ATC to manage friction and rail lubrication on the project.

Dave Harris, Project Engineer at L.B. Foster Rail Technologies leads the team behind the new product development. He explains: "ATC adopted a 'belt and braces' approach to friction management, with both onboard and trackside solutions working together to deliver best in class performance.

"Our high capacity PROTECTOR® IV solution has been re-engineered to meet these exacting specifications. Whereas our standard wall-mounted solution has a capacity of 80 litres; this new specification is to accommodate 230+ litres of grease or KELTRACK®. That's an increase of nearly 300 per cent.

"Making the size modifications to the cabinet was relatively straightforward. We have a proven track record of this kind of development. Where the real challenge lay

was in designing the system to be able to cope with the high volumes of traffic, whilst ensuring a minimal space envelope was utilised. We developed a modular solution specifically for tunnel applications. The modular design future proofs the system, with the capability to retro-fit new control boxes with enhanced functionality in the future. The control box module simply unbolts, with no need to uncouple the motor or pump."

Dave Harris continues: "Our new control box fitted to the PROTECTOR® IV is preconfigured to the project's performance requirements and it is equipped with Remote Performance Monitoring (RPM) capabilities, allowing friction management equipment to be monitored from a central location. This will provide network managers with essential operational data and advanced warning of situations that may affect the optimum performance of friction management equipment. It is more efficient, more controllable and more configurable - all key requirements of the system."

"A further operational consideration of the new system was that it could be refilled in under 15 minutes. Our bespoke solution was a high capacity hose and a barrel mounted system, dispensing product at a rate of 25 litres per minute. The end benefit of the increased capacity is maintenance cycles reduced to every four weeks, whilst the fast refilling capability is also designed to reduce operational and maintenance costs".

For further information contact  
Dave Harris [dharris@lbfoster.com](mailto:dharris@lbfoster.com)



# Market view

The UK's buoyant rail market continues to present us with a pipeline of opportunities. This reflects the nation's desire for improved connectivity through improvements in rail infrastructure throughout the UK.

Results from Ipsos Mori's second 'Global Infrastructure Index' show British people now want better railways more than any other infrastructure priority; that's over and above housing and flood defences.

Our technical expertise places us in a positive position to provide our comprehensive range of innovative rail technology solutions both here in the UK and in Europe. We continue to apply our experience in friction management, creating greater awareness of our solutions through the publication of technical papers that reinforce our status as thought leaders.

We are the supplier of choice for trackside friction management solutions on Crossrail. We continue to push the boundaries of possibility and are involved in a pilot project for our innovative Keltrack On Board (KOB) friction modifier.

Mike Hull  
Head of Friction Management (Europe)

# When it opens in 2018, millions of passengers passing through the new Farringdon station on the Elizabeth line will benefit from fully integrated Station Information Systems (SISS) and Building Management Systems (BMS) installed by our rail telecommunications specialist division L.B. Foster Telecoms.

Farringdon station will be one of the busiest in the UK when it opens in December 2018, connecting with Thameslink and the London Underground to provide links with outer London, the home counties, the City, Canary Wharf and three of London's five airports.

Alongside SISS and BMS, we are installing Farringdon station's Life Safety Programme Logic Control (PLC) systems, interfacing with fire systems controlling escape stair pressurisation, fire dampers and smoke extraction fans.

Overarching design of C660 communications and control systems for the central section of the new Elizabeth line was awarded by the Crossrail project to Siemens PLC. The same award was given to Honeywell Ltd, for the BMS systems. The PLC system is our own in-house design.

Our engineers subsequently developed and fine-tuned designs specific to the operational requirements at Farringdon station, installing state-of-the-art SISS, BMS and PLC on behalf of Farringdon station project contractor NG Bailey.

Lee Kempston is our Senior Project Manager at L.B. Foster Telecoms, responsible for overseeing the installation of these three packages, at Farringdon, along with a team of professional engineers who have delivered such systems on other rail and large infrastructure projects.

He says: "The Crossrail project is one of those once in a lifetime projects that will be looked back upon for generations to come. It's on a scale that's hard to conceive. So being involved at the sharp end is very exciting.

"The overall Crossrail project is now nearing the first stages of completion. That makes our contracts particularly significant as they form an essential and integral part of the new station fabric at Farringdon - one of 10 new stations on the Elizabeth line.

"These projects have been a real test of our telecoms, electrical and mechanical engineering expertise. The scope of the SISS element of our work at Farringdon included installation of C660 communication and control systems, installation of SISS assets, CCTV, Customer Information Systems, telephony, SCADA, PAVA, PHP, radio and fibre networks."

Our Farringdon station team also received high praise from NG Bailey for the first 'no snag' handover to the Crossrail project's engineers, Siemens. This allowed the engineers to start work on commissioning the fibre backbone and the communications racks within the central zone of the station. Ultimately, all stations will be able to communicate with each other and Remote Control Centres.

Lee continues: "As with all projects, there were a number of challenges aligned to the evolving project processes and procedures, as well as system integration requirements, whilst meeting the timetable of the construction teams. But our team approached all challenges with a 'can do' attitude, delivering innovative solutions as necessary."

When Farringdon station opens in December 2018 services will begin through central London. Trains will terminate at Paddington in the west and Abbey Wood in the east. When the route fully opens in December 2019, a train every two and a half minutes at peak time will allow passengers to travel all the way through to Paddington, Heathrow or Reading in the west and Shenfield or Abbey Wood in the east.

# Elizabeth





## Building Management Systems & PLC

Farringdon station's Building Management System (BMS) and the Programme Logic Control systems form part of the life safety systems at the station and along the line.

Farringdon's building management system is a computer-based control system that controls and monitors the building's mechanical and electrical equipment, such as ventilation, lighting, power systems, fire systems and security systems.

The station's PLC system integrates with other life safety systems to ensure that there is a safe means of egress from the station and safe access for emergency response teams to tackle safety issues, as required.

Lee says: "Farringdon is a completely new build station, so everything has had to be developed from concept designs, into a compliant installation. That includes the station's BMS and PLC. Our role has been to ensure the safe, reliable and accurate installation of BMS assets, motor control centres, Honeywell control panels, a range of field devices, cabling and BMS secondary containment and installation, as well as termination and testing of control cabling.

"The PLC has been designed and developed to ensure the highest safety standard. It's a major undertaking in any environment, but one which we have risen to, troubleshooting solutions as the project has progressed to keep it on track and to budget. This is mainly due to the involvement of a highly dedicated set of individuals respected in this industry. The same team has rolled this out to other Elizabeth line stations, to great effect."

Current journey times from Farringdon to Bond Street and Canary Wharf are 18 and 25 minutes respectively. When the Elizabeth line opens these will be reduced to four and eight minutes.



## Market view

**The Crossrail project continues to dominate the infrastructure construction landscape in London. Our new offices near Finsbury Circus further strengthen our presence close to the heart of this £15 billion project.**

Our telecoms capability and sustained reputation for delivering right first time, positions us strongly with major Crossrail project contractors. We continue to leverage additional value from existing contracts. This is achieved through our expertise and unrivalled knowledge of telecoms solutions, alongside our enhanced service offer and technical capability.

Looking to the future, we are well placed to service new projects in the rail market as investment continues at pace on station refurbishment and renewal.

Paul Unwin  
Head of Telecoms

# Elizabeth line...



## Homelessness is an issue that many of us experience daily, but is it something that we give the consideration it deserves?

During our work to distil our brand expression we worked with a video producer who is passionate about tackling homelessness in London. As a business that's got a firm foothold working on major infrastructure projects in the capital, it struck a chord. We've all seen homeless people on our travels around the city. So we decided to add a helping hand to what is a modern day social ill.

The Passage aims to provide homeless people with support to transform their own lives. It runs London's largest voluntary sector resource centre for homeless and vulnerable people: each day helping up to 200 men and women. Its eight-strong team of Outreach Workers makes contact, often late at night or early in the morning, with those sleeping rough in Victoria as they are bedding down or getting up each day.

As a corporate supporter of The Passage we provide funding for specific areas of work and get involved by sponsoring events, holding our own fundraising events and providing gifts in kind.

Simon Waller is the videographer who introduced us to The Passage. He undertakes pro bono work for The Passage and has produced a number of inspirational films. His most recent work is a virtual reality video installation called 'Look the other way'. The film investigates how people respond emotionally when faced with the stark realities of homelessness.

Participants were asked to 'swap places' with a homeless person for a few brief moments using a virtual reality headset, and then feedback on how it felt. The resulting film challenges our behaviour. It was presented to an audience of 3,000 at the Royal Albert Hall.

Simon's film 'Look the other way' is on Vimeo <https://vimeo.com/240705366>

[www.passage.org.uk](http://www.passage.org.uk)



# Moving perceptions





L.B. Foster Rail Technologies in Sheffield is a supporter of Bluebell Wood Children's Hospice in North Anston, Sheffield.

We were one of the first supporters of the hospice's 365 Bluebell Wood Business Club, which provides financial support to families during the hardest times imaginable. Our support also gives us access to Business Club networking events hosted at the hospice, whilst continuing to support its amazing work.

Rachael Dawes, Corporate Fundraising Manager at Bluebell Wood Children's Hospice, said: "By committing to this relationship, 365 Business Club members let us plan for our future. This will help us to provide specialist support and create unforgettable memories for our children and their families."

[www.bluebellwood.org](http://www.bluebellwood.org)



## Let them eat cake

**In Nottingham we are supporting an award winning cafe that provides real work experience opportunities to young people with learning and physical disabilities.**

When we asked our team at the Midway in Nottingham for inspiration about local charities with which to partner, Jason Lowe, who works for L.B. Foster Control & Display Solutions, suggested a local foodie favourite called Rumbletums Cafe in Kimberley.

Rumbletums is no ordinary cafe; it's a working cafe and training facility, which supports young adults aged 16 to 30 who have a range of learning and physical disabilities. It's also a cause that's close to Jason's heart as his 19 year old daughter Mia, who has autism and learning delay, works at the cafe.

Jason says: "Rumbletums is absolutely brilliant. It's a big part of the local community in Kimberley and very popular for its excellent lunches, cakes and coffee. Mia loves working in the cafe. She's learning all sorts of new skills and it is equipping her with new found independence and confidence. I'm delighted that L.B. Foster is lending its support as many of the 'staff' are unpaid volunteers and without charity support and funding, Rumbletums would not be able to continue."

Rumbletums trainees are taught a range of useful kitchen tasks, including food preparation, cooking and hygiene. The ambition of Rumbletums is to equip these youngsters with essential skills and experience that they can then take out into the wider world of work and employment.

In October we raised £179.50 from a charity bake sale for Rumbletums. Three volunteers from Rumbletums Cafe popped into our Nottingham office armed with a selection of delicious cakes, which were quickly snapped up and feasted upon. Our Sheffield bakers also got in on the act, contributing to the overall charitable donation.

The café first opened in July 2011 and has gone from strength to strength. From initially being supported entirely by volunteers the cafe now has five full-time employees.

[www.rumbletums.org/cafe](http://www.rumbletums.org/cafe)

"Rumbletums is absolutely brilliant. It's a big part of the local community in Kimberley and very popular for its excellent lunches, cakes and coffee."



L.B. Foster Automation & Materials Handling is a long-standing supplier of high quality, high performance conveyors and spare part components to Allevard Springs manufacturing facilities in Clydach Vale, within the Rhondda Valley in south Wales. As part of the Suspensions Components Division, Allevard Springs manufactures stabiliser bars, torsion bars, springs and coils for vehicle suspension.

# Perpetual motion

Allevard Springs is part of the Suspensions Components Division of the Sogefi Group, a leading global supplier of original parts for the world's automotive industry. Sogefi designs, develops and produces filtration systems and flexible suspension components, as well as air management and engine cooling systems.

John Knight is Engineering Storeman at Allevard Springs. He is part of the team responsible for maintaining the ongoing operation of the production line. He says: "We have a very positive relationship with L.B. Foster Automation & Materials Handling. It's a relationship that I inherited when I joined three years ago and during my time with the business I have been very impressed with the high standard of customer service, technical expertise and engineering insight that L.B. Foster's after sales team provides."

We designed and installed the original System 60 Overhead Conveyor system at Allevard Springs production plant in south Wales. The high performance overhead conveyors transport the company's automotive coils and springs through various treatment and process plants, prior to despatch for use by leading automotive brands.

John Knight explains: "L.B. Foster Automation & Materials Handling was an integral part of the original team that installed our overhead conveyor system. Having designed and installed the system they have an inherent knowledge and understanding of the intricacies of its workings. That's why we rely on their experience and expertise to keep our systems up and running.

"L.B. Foster's after sales team is now an essential supply chain partner to Allevard Springs. It is mission critical for our business that we keep the conveyors moving 24/7/365, dependent on customer demand.

"The nature of our automated production line means that the conveyors can really take a battering, particularly from shot blasting. The blasting process creates dust, which gets everywhere and adds to the general wear and tear on the conveyors.

"We regularly order replacement conveyor chains and bearings from L.B. Foster's after sales team. It's essential that these arrive prior to component failure. We place orders two or three times a year for chains in a variety of lengths to suit our needs. My experience is that what we order is what we receive, so I'm very happy with our partnership."

# Rolling contact fatigue

*Wear is an International Journal on the Science and Technology of Friction, Lubrication and Wear. A new paper co-authored by Dr Chris Hardwick and Richard Stock of L.B. Foster, with Richard Lewis of the University of Sheffield, looks at the effects of friction management materials on rail with pre-existing rolling contact fatigue surface damage.*



Winston Churchill works in L.B. Foster Automation & Materials Handling's Spares & Servicing team. It's his job to make sure that customer orders are fulfilled accurately and despatched on time. He says: "Our role in Allevard Springs' supply chain is absolutely critical; if we fail our customers fail and that can have a major financial impact all the way down the supply chain.

"We undertake regular inspections and surveys to assess the conveyor, checking for chain stretch and its overall condition. We make recommendations about work to be carried out to keep the conveyor in top working condition. On occasion, we have also attended site on an 'emergency callout' basis, to support Allevard Spring's own engineers.

"Automotive brands often impose heavy penalties on suppliers that disrupt just-in-time manufacturing processes. The implications of conveyor downtime is therefore considerable for Allevard Springs. They rely on us to provide a perfect after sales service, and that's what we aspire to deliver."

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Management of rolling contact fatigue (RCF) risk is a critical maintenance activity in railway operations. Practical means of RCF mitigation involve:

- > preventative and corrective grinding to remove RCF cracks
- > management of wheel and rail profiles to minimize peak contact pressures
- > selection of appropriate rail metallurgy.

In addition, reduction of traction forces by the application of dry film Top of Rail friction modifiers (FM) has recently been shown to reduce crack growth and extend grinding intervals.

Hydro-pressurisation and crack face lubrication are processes by which liquid materials (e.g. water) enter pre-existing RCF cracks and under wheel/rail contact pressure and cause accelerated crack growth, leading to spalling and shelling on rail and wheels. Any liquid material added deliberately to the wheel/rail interface should be considered carefully in terms of the potential for aggravating RCF damage.

The study compares the impact on hydro-pressurisation and crack face lubrication of different types of materials designed for application to the top of rail using twin disc testing. One type of FM material is water-based, drying providing solid particles to the rail-wheel contact. Two other types are oil or oil-plus-water-based (hybrid material) that do not naturally dry and have been introduced more recently to the market. In addition, a commonly used gauge face lubricant (grease) was evaluated.

For a copy of the full paper contact Dr Chris Hardwick at L.B. Foster Rail Technologies [chardwick@lbfoster.com](mailto:chardwick@lbfoster.com)

Institution of  
**MECHANICAL  
ENGINEERS**

# The search is on

L.B. Foster Automation & Materials Handling has teamed up with the Institute of Mechanical Engineers (IMechE) to find the best undergraduate or recent graduate student project in the field of mechatronics from a United Kingdom university.

Mechatronics is a multidisciplinary field of science that includes a combination of mechanical engineering, electronics, computer engineering, telecommunications engineering, systems engineering and control engineering.

The competition is called 'The 2018 Mechatronics engineering student of the year competition' and is sponsored by L.B. Foster Automation & Materials Handling. It is being promoted in universities across the UK by IMechE as part of the Institute's student engagement activities.

Dr Martyn Paradise is former head of Automation & Materials Handling at L.B. Foster. Having stepped back from day-to-day operations, Martyn now fulfils an ambassadorial role for L.B. Foster. He says: "Aligning our brand and our business with IMechE is a great way of gaining visibility with up and coming engineers of the future. We're in a highly competitive space so we need these bright young minds to know who we are and the exciting opportunities that exist within our business.

"This competition provides us with a channel through which to engage with potential future employees, as well as to gauge the talent and innovative thinking flowing through our higher education institutions."

The deadline for entries is 18th May 2018. These will be judged by a panel of industry experts, including practising engineers from L.B. Foster Automation & Materials Handling, as well as leading academics. Shortlisted applicants will then present to the panel of judges at IMechE's Birdcage Walk offices in London in August 2018. The winning students will receive a prize of £1000.





Departures 1 of 2		11:39:53
Time	Destination	Expected
11:39	<b>Guildford</b>	On time
platform 1	Calling at: Vauxhall (11:42), Clapham Junction (11:47), Earlsfield (11:51), Wimbledon (11:53), Raynes Park (11:58), Motspur Park (12:01), Wimbledon Park (12:03), Stoneleigh (12:08), East West (12:09), Epsom (12:17), Ashford (12:21), Leatherhead (12:24), Bookham (12:29), Effingham Junction (12:33), Horley (12:38)	
11:39	<b>Poole</b>	On time
platform 6	Calling at: Farnborough (Main) (12:13), Fleet (12:18), Basingstoke (12:31), Winchester (12:48), Shoreford (12:54), Eastleigh (12:59), Southampton Airport Parkway (13:04), Southampton Central (13:12), Totton (13:38), Ashford New Forest (13:40), Boscawen Road (13:44), Bokerly Wood (13:51), Swaney (14:20), New Milton	
11:42	<b>Basingstoke</b>	On time
platform 14	Calling at: Bursikn (11:59), Esher (12:04), Wotton-on-Thames (12:09), Weybridge (12:12), Woking (12:19), Brookwood (12:29), Farnborough (Main) (12:32), Fleet (12:38), Winchester (12:43), Hook (12:48), Basingstoke (13:01) (South Western Railway) Last Report: No report	
11:42	<b>Shepperton</b>	On time
platform 4	Calling at: Vauxhall (11:43), Clapham Junction (11:50), Earlsfield (11:54), Wimbledon (11:58), Raynes Park (12:01), New Milton (12:04), Woburn (12:07), Kingston (12:10), Hampton Wick (12:12), Teddington (12:18), Fulwell (12:19), Hampton (12:23), Knapton Park (12:28), Sunbury (12:38), Upper Haddenham (12:30)	
11:45	<b>Hounslow</b>	On time
platform 17	Calling at: Vauxhall (11:49), Queensdown Road Botolph Claydon (11:52), Clapham Junction (11:55), Wandsworth Town (11:58), Putney (12:00), Barnes (12:04), Mufkoke (12:07), North Street (12:08), Richmond (12:11), St Margarets (London) (12:14), Trickleton (12:18), Whitton (12:20), Hounslow (12:28)	
11:45	<b>Portsmouth &amp; Southsea</b>	On time
platform 13	Calling at: Woking (12:11), Wokingham (12:17), Guildford (12:23), Farncombe (12:30), Godalming (12:33), Haslemere (12:43), Liphook (13:00), Liss (13:08), Petersfield (13:11), Basingstoke Castle (13:21), Havant (13:28), Southampton (13:29), Haslemere (13:30), Fratton (13:40), Portsmouth & Southsea (13:45) (South	

**inform**<sup>®</sup>  
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