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M A G A Z I N E

The latest news & reviews from the industry



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EDITION TWO 2015

Welcome to railway-news magazine Edition Two.

Following on from the success of our first edition Innotrans special we are now producing the magazine on a quarterly basis. The Innotrans magazine was fantastically received and was aimed at promoting suppliers and exhibitors at the show. This latest edition is aimed to show more of the same leading suppliers and their products but also we have introduced some fantastic independent pieces which we hope you find interesting and informative.

We hope you like this edition as much as the first and if you have any questions about any of the products or services promoted within then please do not hesitate to contact our suppliers directly or if it helps contact us and we will happily help make the contact for you.

Have a great 2015 and we will be back again next quarter.

Andrew Lush

Director

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Contents

Parker	3
Smart Ticketing	6
BT Cables	9
Bayer	12
ARGUS Fluid Handling	14
ESP Group	16
Pandrol	18
Goldschmidt	21
The future of urban mobility	24
AMSYS GmbH	28
TQ Catalis	30
Infotech	31





PARKER PROVIDES THE CLIMATE FOR A SUPERIOR, MORE COMFORTABLE PASSENGER EXPERIENCE.

Parker Hannifin is the global leader in motion and control technologies providing precision engineered solutions for a wide variety of rail applications in all segments. Offering superior engineering knowledge of rail HVAC systems and service to OEMs, the wider supplier network and also to refurbishment providers, Parker consistently exceeds the expectation of its customers worldwide. Founded on a clear understanding of rail industry needs, Parker has a well-earned reputation for quality and reliability. Its rail products are fully validated to meet industry standards and partnering with many of the world's leading rail organisations Parker supplies both individual components or fully integrated control systems.

To the rail industry, the environment where products or solutions are installed heavily influences the specification of components that are integrated into applications. Installation environments differ significantly from project to project. For example, according to whether the components are intended for internal or external use, different challenges exist.

When it comes to mass-transit, customer satisfaction is everything. Whether driven by on time performance or on board



comfort, train operators have to keep customers satisfied to ensure continued use or to avoid negative publicity. In terms of passenger comfort, the successful control of on board climatic conditions can be the difference between having happy passengers or not. Therefore it is imperative that OEMs install HVAC systems that operate reliably time and time again to ensure that everyone on board can sit back, relax and enjoy the journey.

In the complex field of HVAC for rail, Parker has in depth 'proven in operation' experience of offering products that deliver the much-needed reliability mentioned above. While passengers usually simply focus on whether they are too hot or too cold, the overall installation is very demanding from a specification point of view.

Paramount in today's modern rail

environment is the movement of passengers in both comfort and at high speed. However, 'high speed' creates a problem in terms of passenger comfort if not mitigated against. As trains pass by each other at high speed or when they enter tunnels a pressure wave is created and this has to be eliminated from entering into the passenger compartment as it could cause discomfort to all inside. On board HVAC systems draw fresh air from outside, usually via vents which can be opened or closed as required, thus preventing the pressure wave entering the vehicle, this operation can be controlled automatically by a pneumatic actuator. One area that Parker excels in is the supply of compact standard or bespoke pneumatic actuators and control valves for reliable control of intake vents.

It's important to note that performance can be affected by a host of different factors. In many projects HVAC systems



are roof mounted on trains, this environment can prove to be extreme in a lot of cases. Factors such as wind chill, extreme temperatures and temperature differentiation come into play, which is why Parker engineers have created both qualified actuators and their associated pneumatic control valves that can cope. In vent control applications, if the actuator and control valves are not rated for the ambient environment, there is a real possibility that the opening and closing of vents simply won't happen.

Installation space within HVAC control systems for vent control actuators can be limited and often require features that are not standard. HVAC actuators from Parker offer very compact dimensions that can be integrated into the limited space available. Parker also offers enough flexibility to have non-standard porting options depending on how the actuator will be installed. Proven in applications and flexible in approach, Parker compact actuators represent the perfect choice in vent control.

Another critical area in terms of HVAC performance revolves around valves that are specified for controlling different functions within the system. Again, this is where Parker's engineering expertise shines through. As a leading manufacturer of fluid control products, Parker's current valve technologies have been refined over many years working with a wide variety of customers across different sectors. This valuable experience has enabled Parker to develop valve solutions ideal for deployment within rail

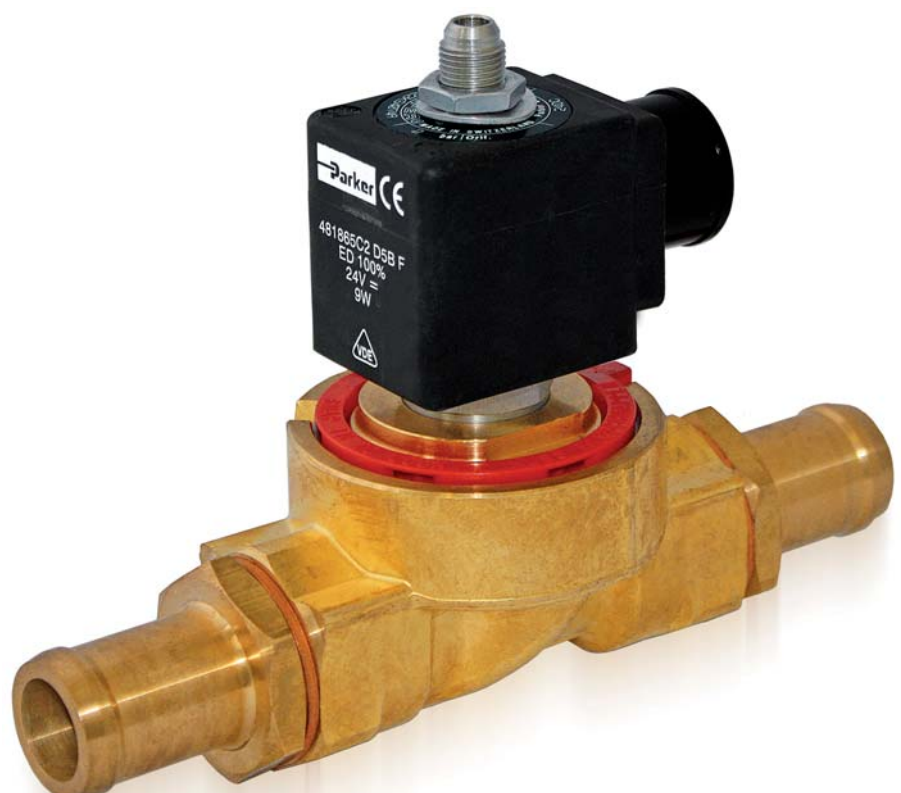
HVAC, like its range of condensation and fluid control valves that set the standard when it comes to operating performance. Delivering full control of fluids, these valves deliver high flow rates for cooling or heating of water as well as options with zero pressure differentials. Sealing technology utilised within fluid control valves has also been optimised to enable leak free performance, usually manufactured from stainless steel or brass, the valves resist threats of corrosion, which can impair performance and can cause breakdowns.

"Parker is a long standing supplier of pneumatic solutions for rail HVAC

applications and has a deep understanding of both environmental challenges and engineering requirements of this demanding industry" stated Dave Walker, Market Development Manager Parker Hannifin. "Whether it's components for HVAC systems, integrated modules for Pantographs or control units for door opening/closing, Parker has an extensive, compliant product portfolio that the global rail industry can rely on".

About Parker Hannifin

With annual sales of \$13 billion in fiscal year 2013, Parker Hannifin is the world's leading diversified manufacturer of motion and control technologies and systems, providing precision-engineered solutions for a wide variety of mobile, industrial and aerospace markets. The company employs approximately 58,000 people in 49 countries around the world. Parker has increased its annual dividends paid to shareholders for 57 consecutive fiscal years, among the top five longest-running dividend-increase records in the S&P 500 index. For more information, visit the company's web site at www.parker.com, or its investor information web site at www.phstock.com.





Together, we can provide the climate for a superior, more comfortable passenger experience.



XTREME temperature control valves



Control valves for hot and cold fluids



Compact vent control actuators

When you partner with the global leader in motion and control technologies, expect a new standard in control for passenger environments. From the **XTREME** range of solenoid valves, pneumatic compact actuators and fluid control valves, to bespoke solutions, Parker's innovations are central in the creation of comfortable climatic conditions and superior operational reliability for optimum passenger experience during high speed journeys. So partner with Parker, and sit back and relax.

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding



ENGINEERING YOUR SUCCESS.

Smart Ticketing

AS THE ECONOMY RETURNS TO GROWTH, THE SPOTLIGHT IS NOW FOCUSING ON HOW OUR TRANSPORT SERVICES – ACROSS ALL MODES – CAN COPE WITH THE INEVITABLE INCREASED DEMAND. PWC DISCUSSES HOW RAIL CAN TAP INTO THE GROWTH IN PUBLIC TRANSPORT.

A vital element of this for rail and bus travel is the ticketing experience – how passengers pay for and use services. PwC’s latest annual ticketing survey comes at a key point therefore, examining how travellers currently use public transport, as well as exploring their expectations for future services. And for the first time, the appetite for smart ticketing has overtaken the preference for conventional, paper tickets.

There is a double whammy that is putting greater emphasis on ticketing. First, from a government perspective, a growing population and economy mean demand on the UK’s transport network continues to rise. While new infrastructure will increase capacity, it cannot do this quickly and as a consequence, the near term challenge is to get more out of existing infrastructure. Second, passengers’ expectations are rising sharply, prompted by the move to digital, in how they receive products and services in other sectors. More dynamic channels are supporting growth in self-service – this is now expected as the default. Transaction times are coming down for purchasing

goods and for accessing services. And this is driving a change in expectations for the public transport sector.

There has been significant progress in the year since our last review of customers’ public transport preferences. In London, buses went cash-free and Transport for London introduced contactless bank card payments. More smart card schemes were launched in city regions across the country. As a consequence, the necessity to purchase and hold a paper ticket is becoming less relevant for many journeys.

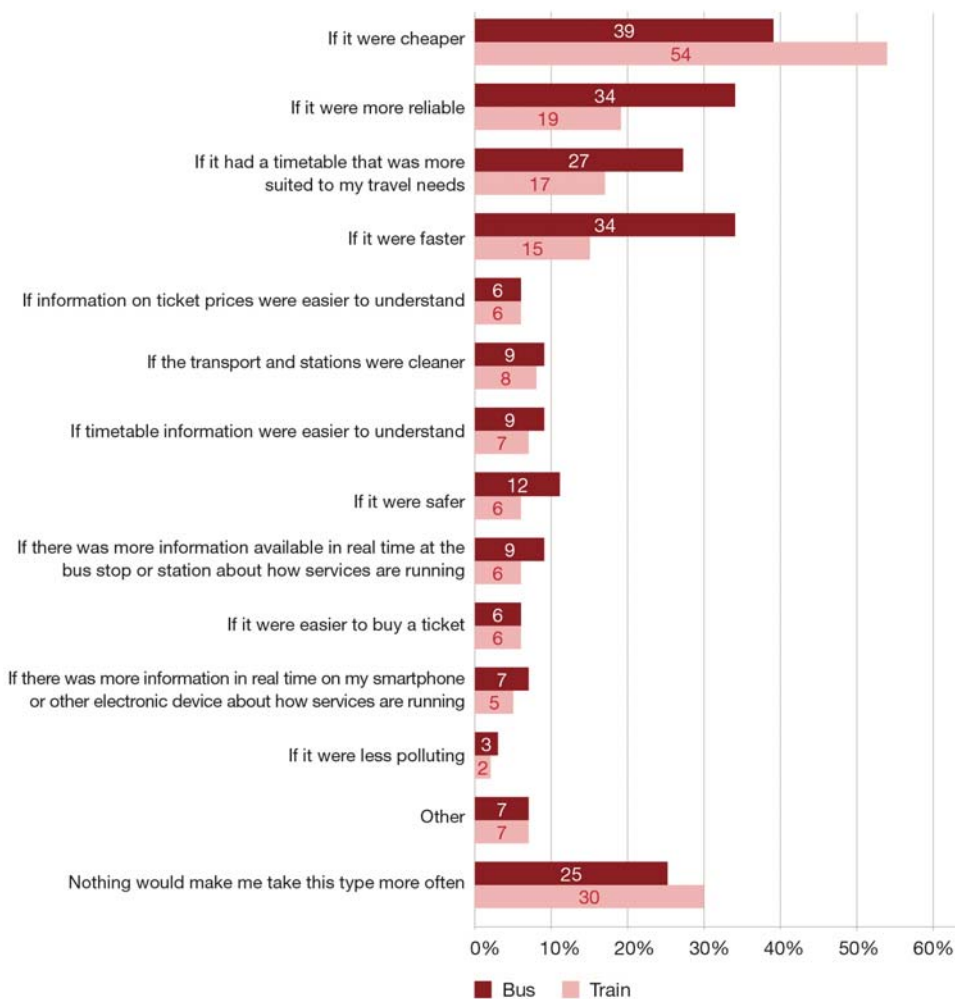
The results of this year’s survey continue to be encouraging for advocates of smart ticketing as an alternative to the traditional paper or cardboard ticket. There is growing evidence of greater use of this type of ticketing and also improved convenience and service perception, which thereby supports increased usage. But while smart is moving in the right direction there is still some way to go; operators can do much more to encourage more customers to make the switch so that the full benefits of smart ticketing really kick in. Smart on its own is

not a sufficiently compelling offer to encourage a significant behavioural change. Other incentives will most likely be required that provide a material benefit to passengers – for example, guaranteeing best prices for journeys, offering more flexible season tickets or automatically paying out refunds for qualifying delays.

There’s something in the move to smart for public transport operators as well. The immediate advantage is in the potential to reduce costs – fewer ticket printing machines means fewer mechanical breakdowns of ticket readers. There is also the benefit from having the insight that smart ticketing data can give operators into their passengers’ travel patterns. And it can enable new pricing mechanisms such as shoulder pricing, where a mid-price comes into effect between peak and off-peak travel periods as a means of better coping with demand.

The new kid on the block this year is the introduction of contactless bank cards into transport smart ticketing. This brings bank card issuers more directly into this

Which, if any, of the following reasons would encourage you to travel by bus/train?



market. They already provide the payment means behind many conventional ticket and smart card product purchases. But the new model being promoted by TfL in particular brings them closer to the individual transaction. There is an added incentive for their involvement in smart ticketing in that it should increase customers' familiarity with contactless payment, thereby potentially acting as a catalyst for increased take-up of contactless card use in other sectors.

Consumers have their own reasons for choosing to travel by a particular mode. Those reasons may change from day to day, week to week or based on the weather, journey purpose, their personal circumstances – a whole host of factors. Price remains high on the list for many, but it has dropped slightly this year. For Generation Y (18-34 year olds), price

remains a key factor in the mode decision. It is less so for older age groups, for example just 19% of 35-54 year olds using a car cite price as a reason for choosing a mode and this figure drops further to 9% for those over 54.

We asked in our survey what would encourage people to travel by train. 30% said they would remain unpersuaded to travel more by train despite potential incentives for them to switch modes. So 70% of travellers could be persuaded to travel by rail more often if the mix of incentives were right.

Aside from price, factors that would encourage more train travel include:

- **Reliability** – if the service departed and arrived on time, consistently, with 19% saying they would likely use the train more if this were improved.

- **Convenience** – 17% say they would be encouraged to use the train if it had a timetable more suited to their needs.

- **Speed** – 15% say they might use the train more if it were faster.

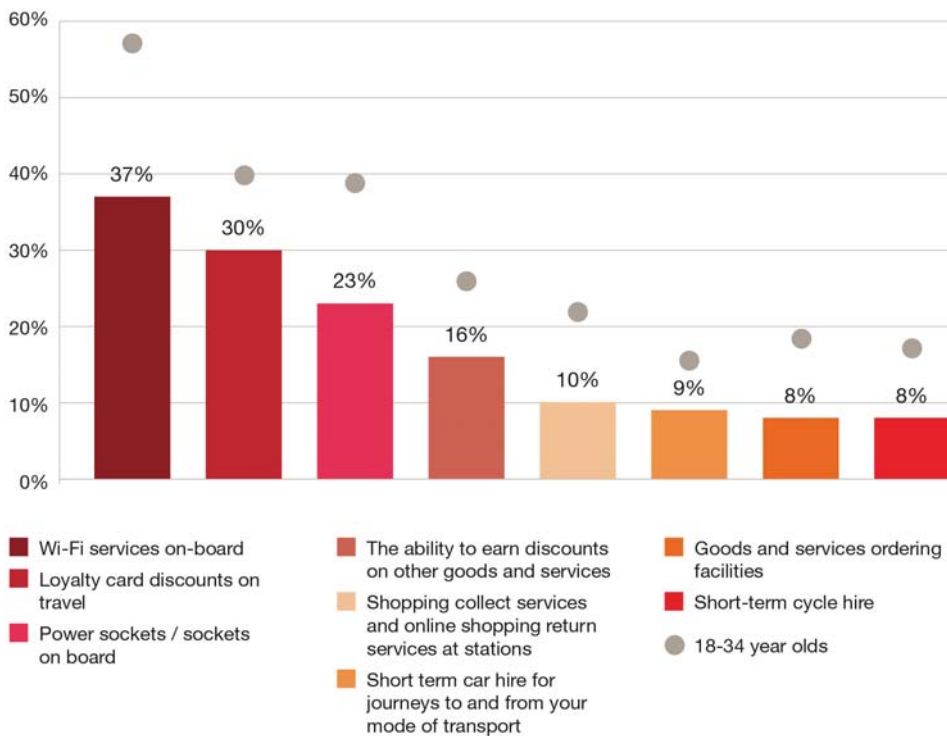
All of these are higher (if only slightly) than the equivalent figures last year. This is an encouraging indicator that the appetite to switch modes under the right circumstances is edging upwards.

Customer-related technologies falling under the banner of smart ticketing also generated positive responses toward a potential change of mode. Some 6% of respondents said they would be more encouraged to take the train if information on ticket prices were easier to understand or if it were easier to purchase a ticket, implying that smart ticketing, coupled with associated tailored information services, could be effective in increasing rail use without needing to alter fares. With the emergence of mobile as a means for payment as well as accessing passenger information, it is interesting that 5% of respondents would be encouraged to travel by train if they were able to receive real-time journey information on their mobile devices.

At first glance these figures towards incentives enabled by smart technologies seem small, but encouraging 5% of travellers to shift from car to train would represent a significant uplift for public transport operators. Indeed, the panoply of responses to our survey suggests that customers are alive to the possibility of shifting to different means of transport and that there is much public transport operators can do to offer attractive alternatives.

We wanted to understand whether passengers were taking advantage of the smart ticketing options currently available and, if not, what would persuade people to start using them. Of those who travel by bus and/or train, 56% normally use an ordinary paper ticket for their journey. This is followed by 19% who use a dedicated transport smart card. In the future, only 42% would prefer to use an ordinary paper ticket for their bus/train journeys,

Are there any other products and/or services that you would like to see offered with the transport methods you commonly use?



while 27% would like to use a dedicated transport smart card.

Combined, the future preference for the self-service modes of print at home, mobile device, smart cards and contactless bank cards make up 45%, more than the future preference for paper tickets (42%). And indeed the future preference for mobile devices increased by 4% compared with passengers' views a year ago.

Ticketing is clearly important, but it is not the only aspect of the passenger experience that will impact future passenger numbers. If bus and train are going to offer an alternative to private car use then they need to build a competitive advantage. To do that they need to build a strong customer service offering that differentiates public transport from the car. One way is by offering additional products and services to enhance passenger experience, increase convenience and/or build loyalty. So we included an additional question in our survey this year to explore some of these

potential value-added services. It produced some interesting findings:

1. People want to be connected and productive while travelling. 37% and 23% of those surveyed would like Wi-Fi or power sources respectively installed on their method of transport. When we focus on the 18-35 year olds alone, these figures rise to 57% and 38%. So over half of young people want Wi-Fi while they travel.

2. There is appetite for a loyalty or rewards scheme on public transport services. 30% and 16% of respondents said they would like to see a loyalty card for discounts on travel or the ability to earn discounts on other goods and services respectively. This increased to 40% and 26% for our younger polled category. Some train operators already provide some form of scheme, or link to existing schemes, but the appetite for loyalty schemes looks set to stay.

3. A customer's journey does not start and finish at a station. Some 9% of

respondents would like to see car hire available at their chosen station. 8% want cycle hire.

4. There is a market for online collection services linked to stations. Some 10% in our survey said that they would like to see shopping collect / return services at stations. This figure was 22% for our 18-34 year olds.

In conclusion, rail operators have a real opportunity to do more for their customers, starting with how they design and develop smart ticketing schemes. However, creating an appealing customer proposition inevitably requires an upfront investment, with implications for any transport operator's business and ticketing strategy. In tackling these challenges, transport operators and other players considering entering the smart ticketing market will need to consider the following:

- Do we need to design for multiple ticketing solutions to cater for changing consumer preferences – ranging from traditional forms of cash payment to mobile or contactless bank cards?
- How can we take advantage of smart ticketing as a platform for new marketing campaigns and pricing models to attract new customers and drive up demand?
- What are the cost implications and how can investments be effectively managed to maximise return?
- How should any smart ticketing offering link to other types of services provided to consumers?

Having clarity on the answers to these questions will help operators and others involved in the sector to develop a coherent and realistic vision that can deliver the smart ticketing benefits for all stakeholders – operators, government and passengers.

The BT Cables story is one of impressive growth and expanding capabilities.

AGAINST A BACKDROP OF TARGETED INVESTMENT AND A MEASURED RECRUITMENT DRIVE, MANUFACTURING OUTPUT HAS INCREASED BY 13% YEAR ON YEAR.

However, total capacity utilisation on current product sets is still only 58% which means there is continued scope for growth. Additionally, there is further investment in machinery to enhance the product range into quad construction cables, suitable for European markets.

Outside of the production area BT Cables has a cable cutting facility which can

process copper cables from 2 pairs up to 4800 pairs and optical fibre cables. This facility is currently handling an average of 250 customer orders per day but has the ability to increase customer order handling up to 400 per day - a further 60%.

BT Cables also has a large warehouse and distribution facility suitable for large cable

drum storage with unique location identification and 3,000 pallet locations at Manchester plus a further 3,000 at BT Supply Chain locations. There are also 40 contingency cable sites across the UK and 50 warehouses across 22 countries around the world. Deliveries are now carried out by dedicated BT Supply Chain vehicles.

The Manchester based operation also has its own materials and transmission testing laboratories and carries out on-site materials recycling. BT Cables has developed and implemented a full business continuity plan underpinning security of supply from raw materials all the way through to finished goods.



The BT Cables business philosophy revolves around three major tenets;

1) Your business success depends on the cables you use

Quality, service and price are always



utmost in a buying professional's mind when looking to procure products. Securing quality is key to minimising risk and the high impact of failure and collaborative forecasting with better management information helps manage stock. BT Cables believes very strongly in partnerships for mutual profit –it adds value through value engineering, providing stable pricing and using its improved buying leverage which leads to even better pricing and delivers cost benefits through freed up cash flow.

2) Experience counts in cable sourcing

Generations of local people have worked in the BT Cables Manchester facility. It has been a major employer in north Manchester under its various owners since 1895 and when the need arises the company always looks to recruit experienced professionals. In fact the senior team's combined experience is over 100 years, and growing. The business is owned by a company which sets the standards so whether the cable is manufactured or sourced, you can trust in our experience.

3) You need a cable partner you can rely on

BT Cables is here today and will be here tomorrow. With its record of growth, innovation and technological development combined with the financial strength of its parent company there is significant reassurance in the BT brand. If things go wrong occasionally, BT Cables will always put the customer first, it strives to do the right thing.

Supply Partnerships

Complementing BTCL in-house manufacturing facility is a programme of supply partnerships with high quality

manufacturing companies across Europe & Asia. These relationships have been built up over many years with the result that exceptional quality and service are achieved.

This extended supply chain adds strength and diversity to BTCL's manufacturing capability. Its team based in Asia ensures the highest levels of product quality are assured. A rigorous product inspection & release programme, regular audits and a commitment to work with its partners to continually reduce waste and take cost out of the process, provide further evidence of BT Cables' investment in its global supply chain. BT Cables' experienced Technical team can facilitate timely new product introduction with our supply partners and dramatically increases the scope of the product portfolio BT Cables can offer.

Encompassing the full end to end supply chain its Corporate & Social Responsibility programme represents BT Cables' philosophy of only working with supply partners who share a similar vision. This is enforced by regular assessments by the team which is together supported by BT Group Procurement Governance team.

BT Supply Chain

BT Cables is closely aligned with BT Supply Chain and in fact shares the same Managing director, Nick Hale. BT Supply Chain is the partner of choice across BT and has a fast growing external customer base. It consists of two national distribution centres, 10 transport hubs, 85 safety testing centres, 98 forward stock locations, a dedicated transport fleet and 850 supply chain professionals and handles 30,000-40,000 customer orders daily. Nick believes the way you manage your supply chain can deliver a competitive edge. It already underpins BT's many B2B and B2C needs, which



means it has unparalleled reach and its people understand the business critical nature of what it does and it's a new player in the market with fresh ideas about how to configure your supply chain.

So what's next for BT Cables?

There is an absolute and continuing focus on delivering industry leading customer service whilst extending the product portfolio in line with and to service new markets. It will drive at pace its expansion initiatives across MENA and Europe and work together to provide the best product and service offerings across the industry. There is a further commitment to work with YOU, its customers and partners, to ensure growth and mutual success and continue with its investment in operations and people.

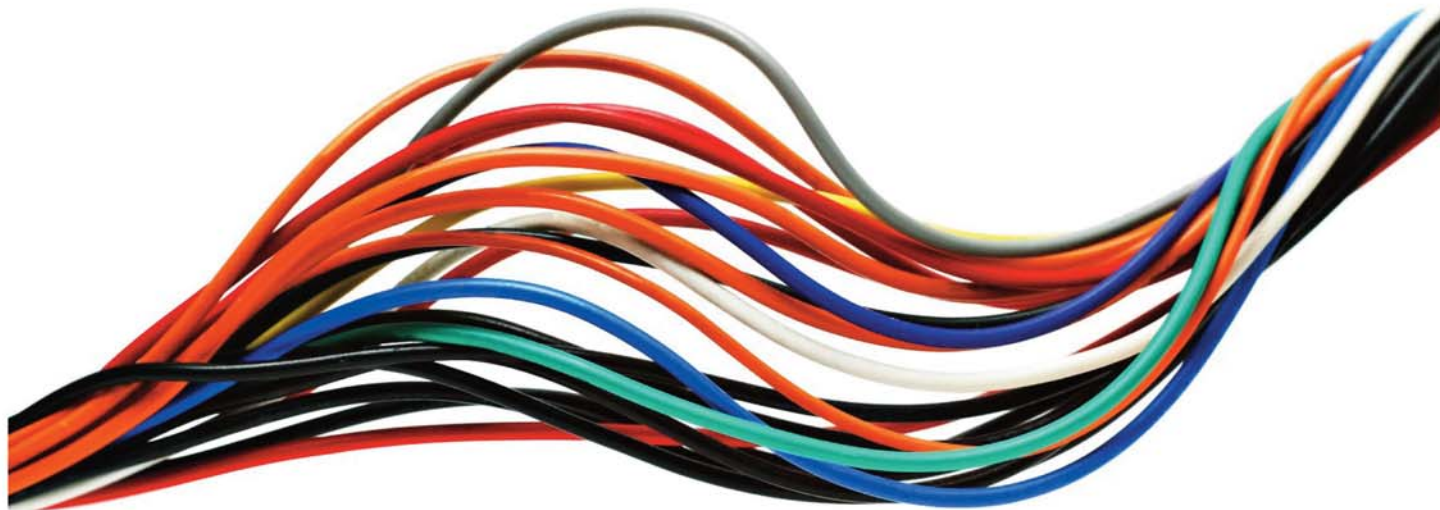
In summary this is what BT Cables has to offer

- Confidence in reliability of supply of cables at competitive prices.
- Full support and backing of BT Group
- Ever increasing scope of products and service offerings.
- Unrivalled experience and a superb record in cable handling and logistics.
- Cable manufacturing expertise spanning more than a Century.
- A simple but effective philosophy and promise to our customers.
- Ability to optimise costs right across the supply chain.
- Most comprehensive BCP.

BT Cables – trust in our experience

BT Cables

A world leader in cable manufacturing



At BT Cables we passionately believe in these key messages

- Your business success depends on the cables you use
- Experience counts in cable sourcing
- You need a cable partner you can rely on

Combined with the strength of BT Supply Chain we offer un-paralleled service and product solutions.

BT Cables can now supply the following products to its customers in the UK, Europe and the Middle East

LAN Cables – Cat3, Cat5e, Cat6, Cat6a, Cat7, Cat5e SWA & Cat6 SWA

Control Cables – CY, SY, YY

Instrumentation Cables – Defence Standard 61.12 pts 4&5, PAS5308

Coaxial Cables –RG6, RG11, RG59, CT100, CT125

Multi-conductor cables – for general interface systems

Security, Fire & Alarm Cables

Optical Fibre Cables – single mode, multi-mode, loose tube, monotube,

Industrial Communications – RS485, RS232, Data, Optical

and many more...

BT Cables – trust in our experience

BT Supply Chain – Rethink what your supply chain can deliver

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Focus on fire safety, design and economic benefits

BESPOKE PLASTIC MATERIALS FOR RAILWAY INTERIORS

Public transport by train, metro and trams is gaining importance worldwide. This is especially true for rapidly growing urban centers, in which the mobility of growing numbers of population must be ensured. What is needed is an attractive, stylish yet functional interior of railway vehicles, so that the passengers feel comfortable. Great emphasis is placed on the highest level of fire safety.

Thermoplastics as alternative

As already evidenced by many applications, polycarbonate (PC) and its blends can meet this requirement profile at a high level. With their properties, they help the railway suppliers to produce flame retardant, durable, environmentally friendly and recyclable interior components at reduced system cost in short cycle times. The high ductility of these thermoplastics opens up great freedom in the design of the components. Their low weight also reduces the energy consumption of the vehicles.

Because of these advantageous material properties, Bayer MaterialScience has developed a wide range of injection molding and extrusion materials and semi-finished sheets based on PC and its blends for interior components of rail vehicles under the trade names Makrolon® and Bayblend®. The range is tailored to the needs of different applications in the railway industry, and especially to the requirements for fire protection. In the European Union the recently introduced standard "EN 45545 - Railway applications - Fire protection on railway vehicles" has harmonized the fire safety regulations with requirements at a very high level.

Good results following EN 45545

The new standard increases in many areas the fire protection level compared to the requirements of the current national regulations. The hazard level and corresponding requirements are determined by the type of rolling stock and the type of rail transport. Tests are

specified in function of specific components ("R") and determine flammability, flame propagation, smoke density and toxicity of the combustion gases. The standard determines three risk levels, so-called hazard levels (HL), of which HL3 applies the most stringent criteria.

One focus of the portfolio of Bayer MaterialScience for rail vehicles are sheets of PC + ABS blends. For example, Bayblend® MTX complies with the new European standard for parts such as ceiling or side wall panels (R1) with a HL-2 classification (2 to 2.5 mm thickness). Also for seat components (R6) it meets the requirements of HL 2 classification (2 to 2.5 mm).

Bayblend® FR3030 is particularly suited to components of electrical equipment (R22). Its excellent fire resistance manifests itself in a HL-3 classification (1.5 to 3 mm) for these applications. At the same time, the sheet material is a good example of the excellent mechanical property profile that distinguishes PC + ABS sheets. It

offers very high impact strength in a wide temperature range. With about 2,650 MPa its modulus of elasticity for an unreinforced material is high. This makes components made out of this material stable and unbreakable.

Its fire resistance is based on environmentally friendly flame retardants that meet the requirements of the halogen content according to VDE 0472 part 815. It should be emphasized that Bayer MaterialScience in principle designs and optimizes its range of flame retardant products in such a way that it reflects the needs of customers for environmentally friendly products.

High flame resistance to US-Norm

Bayblend® MTR (Mass Transit Rail) sheets are tailored to the requirements for flame resistance of the US and Chinese markets. With their fire resistance, low smoke density and low toxicity of the combustion gases, they provide a high level of fire safety in interior parts of rail vehicles. They meet the requirements of the US standard for railway applications (NFPA130) with regard to the tests specified in ASTM E 162 and ASTM E 662, which evaluate the surface spread of flame and flame propagation related to the combustion gas development.

No painting required

Bayblend® sheets are colored through and through, and available in numerous colors. Parts made from these sheets no longer have to be painted. As a result, scratches are less apparent, which adds to the longevity of the interior fittings. On the other hand, components made of sheet molding compounds (SMC) require painting. As a consequence, their surfaces cannot be provided with certain grains or textures, unlike colored PC blend sheet, which therefore offer considerably greater freedom in the design of interior parts. Bayblend® sheets can also be provided with an anti-graffiti layer.

High light diffusion

Also for applications in the field of interior

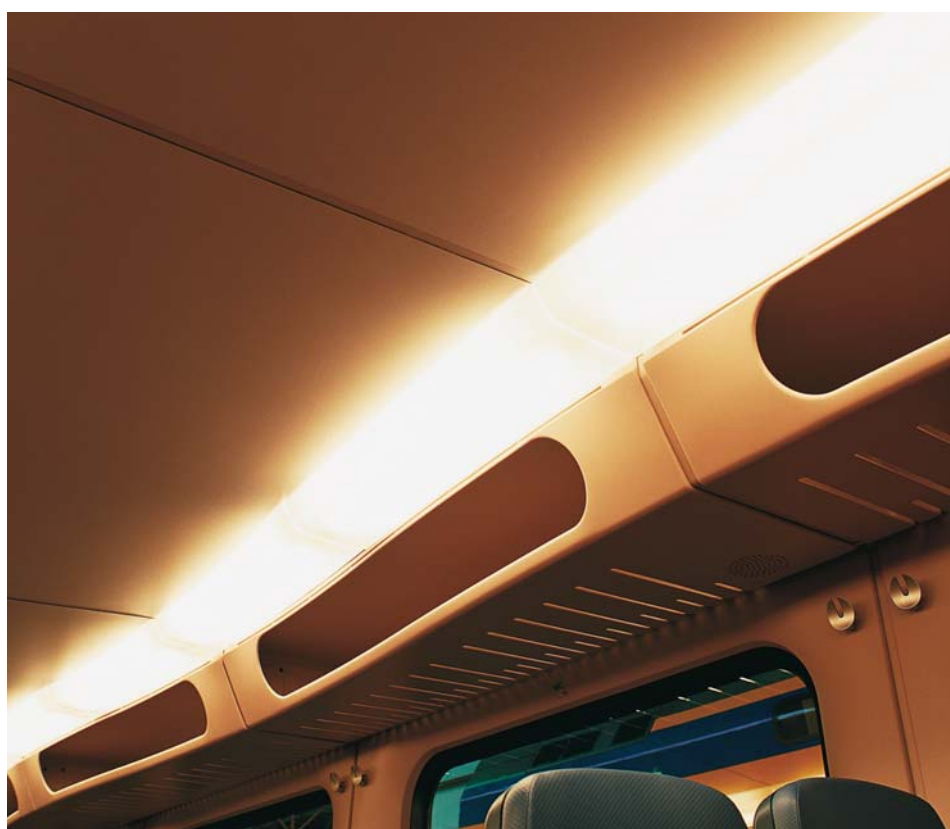
lighting of rail vehicles, Bayer MaterialScience offers injection moulding materials next to translucent and transparent sheets. Makrolon FR DX sheets possess optimized light scattering behavior ; when used as cover for LED lamps they provide a homogeneous, bright and pleasant lighting in the interior of the vehicle. They have excellent flame resistance in line with R4/HL3 classification according to EN 45545 .

Economic thermoforming

Makrolon® and Bayblend® sheets are processed by thermoforming. This method provides medium to large parts with good surface quality and low weight. Especially in the case of small to medium-sized production runs it offers cost advantages over SMC, but also in comparison to sheet metal, aluminum or polyurethane systems, due to the low tooling costs. In contrast to SMC and other thermosets no smoothing or polishing of uneven, faulty component areas is necessary. Thermoforming only requires short cycle times, while for thermosets rather longer cycle times are typical due to the curing process.

Global presence with a regional focus

With its global presence Bayer MaterialScience has extensive knowledge in the market segment rail vehicles. The company offers material solutions which correspond with the specific requirements of certain countries in terms of flame retardants. Furthermore, it is present in all major economic regions with production sites and service centers. Therefore, customers can be served anywhere in the world quickly and reliably.





PART OF THE HIFLEX EUROPE GROUP ARGUS FLUIDHANDLING LTD BASED IN THE UK AND ARGUS FLUIDTECHNIK BASED IN GERMANY SPECIALISE IN THE MANUFACTURE OF HOSE ASSEMBLIES AND RIGID TUBES AND ASSOCIATED COMPONENTS FOR THE OEM MARKETS ACROSS THE WORLD.

Investment in new technologies means that our customers have access to laser cutting and profiling, electric and hydraulic bending, robotic bending capability, brazing, orbital welding, robotic welding, tunnel brazing. A range of surface finishes are available from electro plating to powder coating and painting.

Hose terminations are available in standard formats utilising materials specified by the customer and our

technical engineering experience allows us to produce bespoke solutions for customers if required.

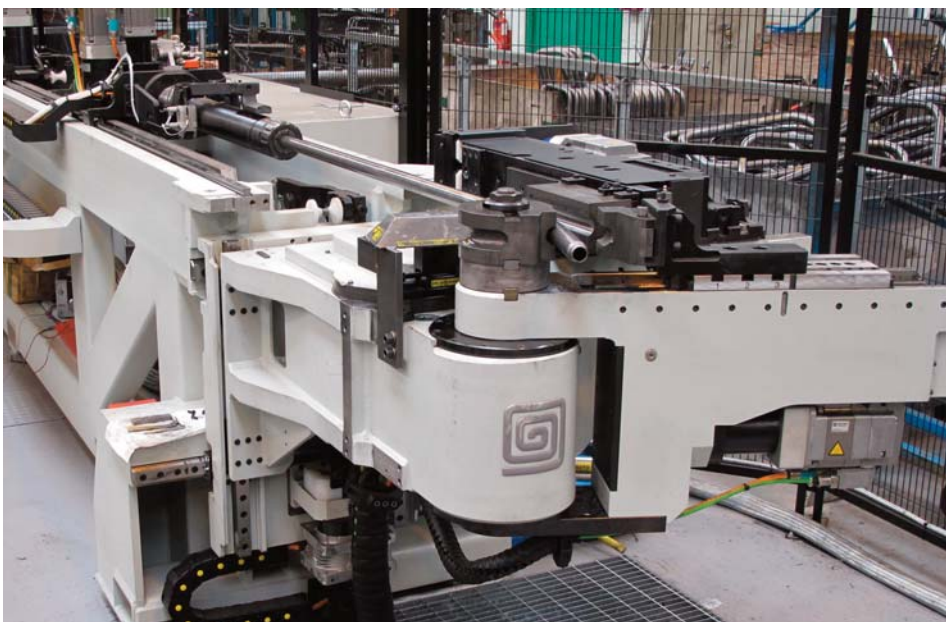
Working closely with the Railway Industry for many years has provided us with a wealth of experience and knowledge when it comes to developing solutions for rolling stock and associated equipment and components, a recent development is the introduction of a new hose meeting the requirements of NF F 16-101 – BS6853 and EN45545-2 the hose has been



specifically developed for the Rail Sector utilising the knowledge gained through our relationship with this sector over many years.

The product is dimensionally in line with EN854 R3 specification with a range of end coupling options in a variety of materials including mild steel, stainless steel and brass, specialised end fittings to customer specifications can also be developed if required.

We are also able to offer specialised packaging solutions including the kitting of components if required to facilitate single source purchasing.



Introduction

Argus Fluidhandling Ltd specialises in the manufacture of hose assemblies, rigid tube assemblies and structures for use in OEM markets throughout the world.

Investment in the latest technologies has seen the group move to the forefront in its chosen markets and it continues to develop new products and services to meet its customers ever evolving requirements.

Part of the Hiflex Europe Group with operations based in the UK and Germany it is well placed to support European and Global OEM customers.

A player in the Rail Sector, Argus has been supporting hose development for over thirty years and is recognised as having one of the best low smoke and fume products available on the market and is now launching **RAILSAFE** an enhanced version of this hose range.

Product Validation

The **RAILSAFE** hose compound meets the combustion requirements detailed in:

NF F 16-101 - Category I2 & F1

BS6853:1999 - Exterior minor use Category 1b and 2

EN45545:2013 - R23 for HL1, HL2 & HL3 hazard level classification.

Full test reports are available to support the above on request.

The hose and fitting combination has been subjected to the tests detailed in EN854.

Group Capabilities

- Hose development and validation
- Hose assembly manufacture small, medium and large batch
- Fitting design and manufacture
- Prototyping and off tool pre-production facilities
- Pressure decay, hydrostatic and air under water pressure testing
- A range of supply chain solutions to meet our customers requirements
- Continuous improvement and lean manufacturing methodology
- Tube bending
- Laser profiling
- Robotic welding
- Small batch CNC machining
- Certified to ISO9001 : TS16949 : ISO14001



Additional Product Information

To demonstrate the confidence in the **RAILSAFE** product we are currently subjecting the Railsafe AF45 hose range to an extended **1-million cycle** impulse test. The bespoke Railsafe AF45 hose range was designed specifically for the rail industry and is often used to replace a standard EN854 R3 hose for railway air brake applications.

How can rail services keep up with the increasing demands of a tech savvy and inter-connected society?

WHEN I THINK ABOUT THE FUTURE OF RAIL TRAVEL, I CANNOT HELP BUT CONSIDER THAT IN BRITAIN WE HAVE A VERY OLD INFRASTRUCTURE COMBINED WITH AN INCREASINGLY DEMANDING 24/7 CONNECTED PASSENGER WHO DOES NOT LIKE TO COMPROMISE.



If you look at the emerging economic superpowers like China, they are investing massively in brand new state of the art infrastructure and trains to serve this modern commuter. Back in blighty meanwhile, the plans for HS2 seem to have been met with a mixture of controversy, fury, disbelief and if we're honest a deep-rooted cynicism that by the time Britain does get a high speed train another country will have built a faster one in half the time and with half the investment! So how do we get the best out of the existing rail infrastructure in this country and how can rail services keep up with the changing demands of a tech savvy and inter-connected society? The answer surely lies in embracing technology: if we can't change the infrastructure quickly then we need to connect with passengers in real time, all the time.

Plugging the information gap: the role of travel apps

Considering the amount of travel apps that are available to customers, it would make sense for transport operators to jump on board and adapt their way of doing things. Today's travel industry is all about ease of mobility and accessibility, and thus travel apps or web-based customer support applications lie at the heart of the future of rail travel. It's quite surprising to many to discover that Transport for London (TfL) have not developed any of the 362 travel apps currently on the London market – rather they have enabled developers to exploit their data to get close to the customer. To keep up with the demands and the changing needs of customers, operators must think 'out of the box' in order to stay relevant. Rail providers need to be open-minded and creative to improve their service delivery: understanding value in current and future users' terms. During 'hack day' events computer programmers, software developers, interface designers and graphic designers come together to collaborate on software and service design projects. There are currently events in place like OpenHack London where tech experts meet up to brainstorm, program and code together on software development programs. Rail operators and travellers need to collaborate and co-design apps and services - developing ecosystems of innovation which will adapt to changing needs throughout franchise periods to develop their own travel apps and services. This will fill the information void that exists between customers and rail operators. I believe that the way to fill that gap is to improve customer accessibility to rail transport and travel information services. Given that the rail industry is embracing smart cards and the use of smartphones for passengers to start their journey, more sophisticated apps and something resembling more of a personal concierge service is the logical next step in this customer journey. Passengers want real-time, no noise information, 24/7 to forward plan a journey and, more importantly, to make alternative plans

when Plan A fails. This information needs to go beyond providing alternative rail travel information – rail operators need to view the passenger from the passenger's perspective – often rail is only a small part of the overall journey for a passenger. What if a rail operator could help a passenger re-plan the journey to their end destination using multiple modes of transport?

The experience of rail travel

When I think about today's increasingly demanding consumer, I can't help but think that rail operators need to remember what makes travelling by train so special. With cheap air fares and better bus services, rail operators need to really think about what makes rail travel unique and focus on delivering it. Unfortunately, the best coastal views or the experience of travelling on bridges that are landmarks of civil engineering will all be overshadowed by a bad journey and poor passenger experience. Rail operators need to get closer to their passengers and understand what they expect from a train journey and make sure they meet passenger expectations. Whether that is modern expectations such as better wifi connectivity in carriages or basic expectations like a decent buffet service and dare I say it clean carriages and toilets. I was surprised to find that as part of its successful bid for the East Coast, Inter City Rails committed to 'cleaner' trains – surely in the 21st century we should be able to assume that certain things are a given.

Making life simple for passengers

I started by considering the ageing infrastructure of the British rail network and how that is potentially incompatible with the expectations of the modern traveller. I'm going to end by concluding that rail operators should aspire to make life simple for passengers. Embrace modern technology to connect with passengers, use that technology to keep the dialogue open – communicate real-time information when it is needed and seek feedback at all times. Listen and learn

from passengers to design and deliver a service that people want to use and enjoy using, rather than just part of a necessary commute.

About the author

Steve Cassidy is director of future mobility at ESP Group

<http://the-espgroup.com/>

The Borders Railway & Bowshank tunnel

PANDROL TEAM WORK COMPLETES DEVELOPMENT AND FIRST INSTALLATION IN RECORD TIME

A major track reinstatement project in Scotland provided a significant challenge to the Pandrol team when Network Rail Scotland requested the installation of the new track fastening system which was in the final stages of development.

The Borders Railway is to be reopened with funding from Transport for Scotland with Network Rail Scotland leading the design and build project from their headquarters in Glasgow. The old Waverley route, which was closed in 1969 and leads from Edinburgh Waverley station southwards towards the Scottish Borders, through Galashiels and terminating at Tweedbank, which is just north of Melrose.

Whilst many of the original structures and

empty track bed remained, some significant new structures and alignment are needed on the southern outskirts of Edinburgh before the route follows the valley of the Gala Water. Network Rail Scotland was determined to achieve a track design using a single fastening along the whole length of the newly relayed track, including on and through the structures. This would benefit the railway operation of the route by needing fewer spares and reduced types of tools.

The majority of track length is plain line ballast track using Type G44 concrete sleepers, which use the Pandrol FASTCLIP system as the standard fastening. This determined the preferred clip type for the whole route.



The challenge for Pandrol was a short tunnel between the towns of Stow and Galashiels. Pandrol had less than 8 months to finalise the design, complete testing and production tooling, and supply the new system to the sleeper maker; RAILONE in Germany, to be included as part of the cast-in sleeper package for the RHEDA 2000 slab track system.

The Bowshank tunnel is cut through a promontory of rock around which the Gala Water river negotiates a tight bend in the valley floor. The tunnel is aligned on a tight horizontal curve of 500 metres radius for the twin tracks which form a passing loop in the mostly single track route.

The modern requirements for extra trackside equipment in the tunnel together with the need to increase the line speed above the original Victorian design; meant that extra dynamic gauge clearances were needed. This could only be achieved by lowering the level of track within the tunnel by 600 mm.

In order to fix the track into this tight envelope, it was necessary to use a concrete slab track to achieve the higher



cant and cross fall to allow good drainage, whilst maintaining the tunnel clearances.

In choosing the RHEDA 2000 system and specifying the Pandrol 'FCA' system to achieve mostly interchangeable components and standard tools, Network Rail Scotland forced the need for a rapid programme of tooling, inspection, testing, fit and function assembly with the sleeper maker in Germany, and finally training the installation team in Scotland.

The Pandrol team moved into action in November 2013, placing orders for the new designs with specialist suppliers, and preparing for final laboratory testing. By the end of August 2014 the track in the Bowshank tunnel was complete and awaiting the connections with the ballast track at both the northern and southern portals. How was this achieved?

It was possible to accelerate the normal time for tooling by rapidly producing low volume tooling; sufficient for the short length of the track in the Bowshank tunnel, so that first samples were available for the initial assembly trial in Germany during January 2014. The fit and function assembly comprised a short track panel of 6 sleepers and 3.2 metres sections of size 56E1 rails specially taken to the RAIL.ONE sleeper factory outside Dresden. The Pandrol team carried the rail in the Pandrol Track Support van driving the 1500 kilometres to Dresden from Worksoop, together with all the tools needed for rail handling and clip installation. Measuring equipment was used for applying the correct torque to the bolts and adjusting the track gauge.

The success of the first assembly triggered the production phase to move ahead immediately. All Pandrol 'FCA' components were despatched to Germany for assembly with the sleepers. The sleeper production commenced in February and ran to the end of April, with sleepers being despatched to site at the end of April.

The main contractor is BAM Nuttall, which is very familiar with the Pandrol FASTCLIP system for ballast track as delivered on the Type G44 sleepers. Whilst many of the



components and the appearance of the Pandrol FASTCLIP 'FCA' system is almost identical, some significant differences in the site methods are necessary to install this slab track. This promoted the Pandrol support team to visit the site in order to brief the installation gang.

Using the sleepers previously delivered to site, the briefing and demonstration took place in the middle of July just prior to the programmed start of the track installation in the tunnel. A track training panel was created and 20 metres rails used to create the track. The panel was used to demonstrate the latest installation and extraction tools which work for both standard FASTCLIP as well as the new 'FCA' system. Rail turning bars and sleeper lifters were also demonstrated so best practice for the handling and accurate positioning of the rail could be highlighted.

The installation of the track in the tunnel and the pouring of the mass concrete around the carefully jacked and aligned track panels preceded at an accelerating pace as the track team gained experience

and confidence. The whole of the track in the tunnel was completed by the end of August.

The Pandrol team returned to the site on two further occasions, the first about halfway through the track laying, and finally after the completion of the concrete slab track. The final installation produced an excellent alignment through the tunnel. The track is tightly curved and canted about 100 mm, so the final job shows adjacent tracks; separately canted and split by a central drainage channel. The clips and shoulders are both Sherardised finish for corrosion protection in the wet tunnel, which has been known to flood in history. The worst record was 1891 when the track was submerged by 300 mm in flood water from the Gala Water river.

The track commences the first commissioning runs early in 2015, with the formal start of train services following the opening of the route on 3 September 2015.





PANDROL FASTCLIP FCA INSTALLED ON THE RHEDA 2000 SLAB TRACK IN THE BOWSHANK TUNNEL

The Bowshank tunnel is a key part of the Borders Railway reinstatement project for Network Rail in the UK, and the new Pandrol FASTCLIP FCA system was selected to provide a consistent type of rail clip along the whole length between Edinburgh to Tweedbank.

The FASTCLIP FCA system appears similar to the FASTCLIP system used on the G44 concrete sleepers for the ballasted track. Whilst the components are mostly interchangeable and use the same installation tools, there are some differences which allow the system to provide both vertical and lateral adjustment.

The Bowshank tunnel is fitted with track held firmly to retain long term alignment and allow high line speed on the sharply curved double track.

Reduced maintenance spares and mechanised installation and extraction assist to reduce the maintenance liability.

For more information about
Pandrol's wide range of
rail fastenings visit
www.pandrol.com

Pandrol Track Systems
TEL +44 1909 476101
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EMAIL Info@pandrol.com

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TRACK SYSTEMS

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RAILSTRAIGHT

PRECISION MEASURING DEVICES – HIGH-END RAIL MEASUREMENT FOR THE RAILWAY NETWORKS OF THE FUTURE

Modern technology is also increasingly finding application in the area of railway engineering to enable railways to handle ever higher loads and meet the challenges of the future. Increasing passenger levels and higher cargo volumes lead to higher speeds, higher average axle and wheel loads and tighter schedules. The result is three challenges: on the one hand the network is subject to considerably more wear whereas on the other hand the time slots available for maintenance are continually becoming smaller. In addition, the regulatory authorities require more and more digital documentation of the maintenance and security status of the railway networks. The new RAILSTRAIGHTS from Goldschmidt Thermit offer the perfect solution to check the straightness of rails. This can be for new rails or maintenance where the straightness of the welded joints, insulated or fishplate joints is checked. In the course of maintenance the formation of corrugations can also be analyzed before or after grinding work. As well as the highly precise electronic measurement, the devices also impress with their easy handling and innovative control via an app.

RAILSTRAIGHT APP: excellent precision measurement using your smartphone

Using our award-winning RAILSTRAIGHT APP we can in future offer our customers

even more comfort in the measurement process using our RAILSTRAIGHT measuring devices. It takes just two minutes to install the diagnostics software which runs on the Android operating system – regardless of whether a smartphone or tablet – with the app offering an intuitive user interface with on-screen help texts. The app which is free for customers enables the display of test reports of longitudinal profiles of the running surface and running edge with the support of user defined specifications and the creation of PDF reports on a tablet or smartphone which can be sent by email. Furthermore, remote maintenance per log file and mailing and GPS position definition is possible. This means that it is possible to record the condition of the track in a short time – depending on the local conditions and also without track possession – and to document this electronically without a

delay. Individual measurements can be grouped together for projects and the results sent directly by email to the monitoring body or the ordering party.

The right measuring device for every requirement

Naturally RAILSTRAIGHTS meet all the prevailing standards for the electronic measurement of welded track and corrugations including all of the regulations of the DB, EN and the Netherlands quality index. The devices are not limited to straight rails, they can also be used on curves and measurements are possible in particularly important areas for maintenance such as switches and intersections.

1. **RAILSTRAIGHT COMPACT:** straightness measurement to check welding work, fishplate joints and insulated rail joints with alteration-proof electronic documentation of the acceptance results.
2. **RAILSTRAIGHT DUAL:** simultaneous measurement of the running surface and running edge for even quicker straightness measurements when inspecting the status of the rails, or for example for quality assurance with a flash butt welding device.
3. **RAILSTRAIGHT WAVE:** in addition to straightness measurement also measurement and documentation of corrugations in coordination with the required grinding or milling work or for the final acceptance.

Advantages of the new RAILSTRAIGHT measuring devices:

- Highly precise measurement of the straightness and with WAVE also the analysis of corrugations with different wave lengths on the surface of the rail up to a distance of 5 meters
- Robust design for daily use on rails with silicon end covers to protect the devices from shock damage and for maximum non-slip
- Compact, light design with ergonomic handle, delivered in practical neoprene carrier bag for easy transport
- Designed for operation by a single person, without the need for a long familiarization process
- High performance internal lithium ion

battery, rechargeable via micro USB from the main power system and from car; with additional alternative power supply using AA batteries for a longer operational time

- Adjustable stoppers allowing adjustment to different rail profiles and correct measurement of the running edge
- Innovative RAILSTRAIGHT APP to control RAILSTRAIGHTS via Bluetooth with Android device and automated data transfer for immediate documentation of the measurement values and clear presentation as a graph
- Creation of individual PDF reports through input of specific data such as the rail profile, speed class, direction or name of the welder, also with own company logo
- Possibility of immediate wireless transfer of the report by email.
- New optional accessories:



- digital rail thermometer which automatically transfers the rail temperature for each measurement to the RAILSTRAIGHT APP
- magnetic holder for improved hold on the rail





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The future of urban mobility

OPPORTUNITIES WITHIN EXTENDED MOBILITY ECOSYSTEMS

François-Joseph Van Audenhove, Oleksii Korniiichuk, Lucie Lammens

All around the world, people are flocking to cities. This will be accompanied by massive growth in urban traffic, which is expected to triple by 2050. What are the future business models of urban mobility that can drive necessary innovation across the ecosystem? This article sheds some light on the possibilities, referring to Arthur D. Little's new study, "The Future of Urban Mobility Study 2.0".

Both now and in the future, urban mobility poses a massive challenge, but also a great opportunity for business. Drawing on Arthur D. Little's "The Future of Urban Mobility" study, carried out together with UITP (the International Association of Public Transport), this article briefly summarizes some of the key trends, and focuses on the opportunities for businesses to benefit as partners of extended urban mobility ecosystems.

The urban mobility challenge

All around the globe, people are flocking to cities. In 2007, for the first time, UN population figures showed that more than half of the world's population lived in urban areas. That proportion is set to rise to 60% by 2030 and 67% by 2050. This will be accompanied by massive growth in

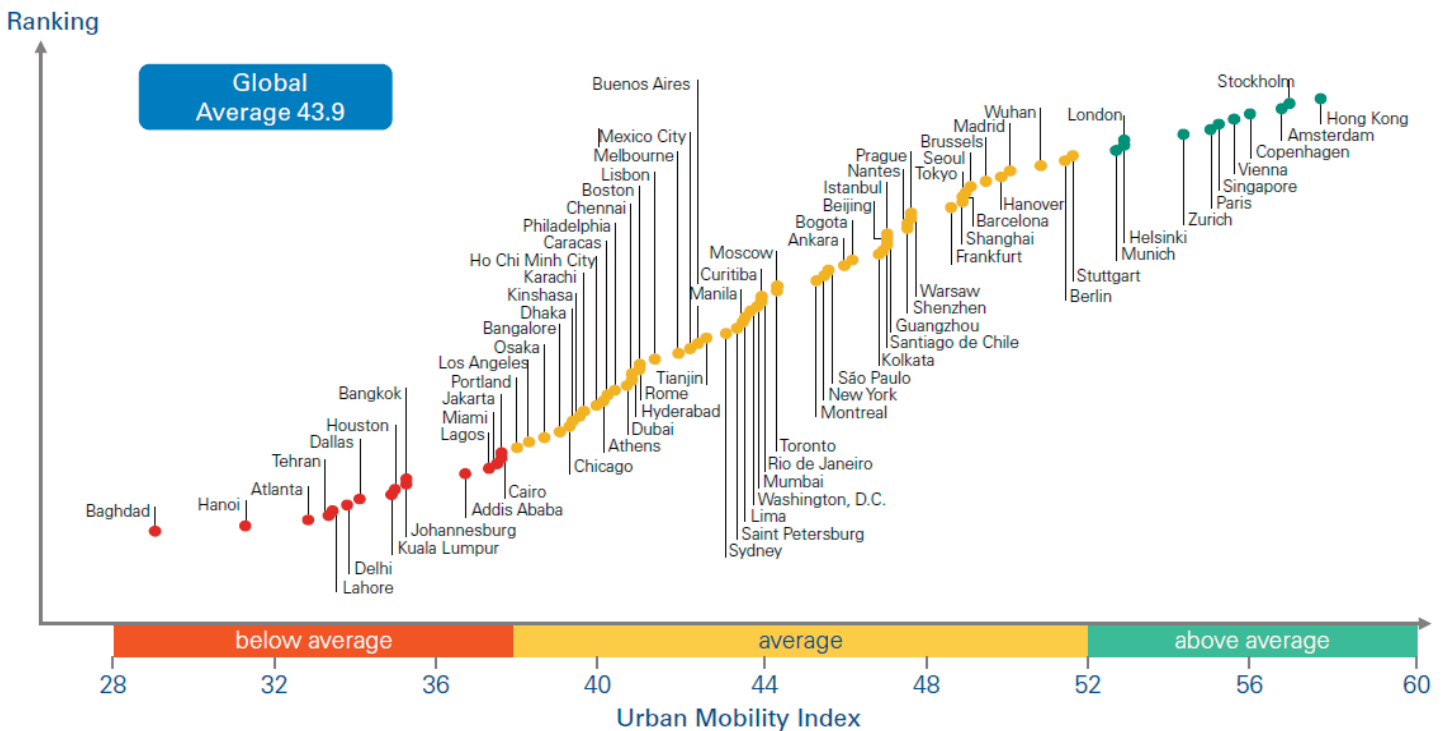


the number of individual journeys taken daily, leading to increasing demand for both passengers and goods mobility, which is expected to triple by 2050.

At the same time, customers' expectations for fast, reliable, convenient and individualized services have been increasing, as has been the mix of transport modes and services offered to them, a trend that is likely to continue. Similarly, customers are increasingly concerned about the sustainability of their modes of travel, and some are prepared to avoid certain transport methods because of this.

If the world fails to change its mobility habits, the future could be bleak: estimates suggest that by 2050, urban dwellers will spend, on average, twice as long in traffic jams as they do now, air and noise pollution will increase massively, urban mobility systems will use five times more of the planet's bio capacities than they did in 1990, and overloaded transport infrastructures will present a major obstacle to economic growth. Thankfully, progress in improved public transport is already being made in many cities, but public financing limitations and system complexity remain challenges. Addressing this requires coordinated

Figure 6: Arthur D. Little' Urban Mobility Index 2.0



Source: Arthur D. Little Urban Mobility Index 2.0; UITP is independent of this index, which does not necessarily reflect its opinion; 100 index points for city that would achieve best performance on each criteria.

effort from many public and private transport stakeholders, and system innovation is the key. Technological advances such as digitalization offer huge potential opportunities for specialized players, not only in the public transport supply chain, but also in other areas such as automotive, financial services, telecoms, and other digital sectors. But the complexity of setting up ecosystems poses a barrier to innovation: in particular, who pays and who benefits? In other words, what will the future business model(s) of urban mobility be that effectively drive innovation across the urban mobility ecosystem?

Arthur D. Little's Urban Mobility Index assessed the mobility maturity and performance of 84 cities worldwide, based on a set of 19 criteria. The mobility score per city ranges from 0 to 100 index points; the maximum of 100 points being defined by the best performance of any city in the sample for each criterion.

The results are shown in Figure 6 and find

that most cities are badly equipped to cope with the mobility challenge ahead. It may be seen that although significant progress has been made in areas such as shared mobility, sharing of cars and bikes, penetration of mobility smart cards and development of integrated mobility platforms, the global average score is still only 43.9 points. This means that, on average, cities achieve less than half the potential that could be reached today when applying best practice across all operations. Even the city with the highest score, Hong Kong, with 58.2 out of 100, still has a significant way to go.

Barriers to progress

A comprehensive review of technologies reveals sufficient availability of solutions to address mobility challenges. So, given the scale of the looming crisis, what's stopping further progress from being made?

The two main barriers to superior mobility performance relate to the inadequacy of

urban mobility strategies and the fragmented structure of urban mobility systems.

Urban mobility strategies do not fulfill expected requirements and lack integration. Strategies lack clear vision and strategy, mobility interlinks poorly with other urban strategies such as CO2 reduction, regional mobility systems have limited integration, and mobility strategies lack private sector engagement. Structure is too fragmented, not allowing for system-level innovation and collaboration, and can even be hostile to innovation and lack integration and agility to adapt to changing demands.

Tomorrow's superior mobility systems will require a network of interconnected mobility solutions with "one face to the customer". In order to achieve this, public transport authorities and operators will need work closely with each other and set up ecosystems with other players in order to deliver innovative mobility solutions.

Four dimensions for sustainable urban mobility systems

Our research into good practices around the world's cities shows four key dimensions that need to be addressed to put sustainable urban mobility systems in place:

- **Visionary strategy and ecosystem:** City authorities need to develop a political vision and clear urban mobility objectives in order to inform strategic priorities and investments. Transport authorities also need to consult, engage and win support from other (public and private) mobility stakeholders to ensure broad backing from all parties involved.
- **Mobility supply (solutions and lifestyles):** Cities need to further extend their mobility offerings, in terms of both capacity and quality of services, and adapt from "delivering transport" to "delivering solutions".
- **Mobility demand management:** Mobility demand management is a delicate discipline that can easily meet strong resistance if not properly planned and executed.
- **Public transport financing:** Devising the right funding mix is critical, and securing adequate funding in the context of budgetary pressure means thinking outside of the box.

A system-level approach across these four dimensions is critical: sustainable improvements to a city's mobility performance requires simultaneous improvement of each of these four dimensions, since the weakest link will influence overall mobility success.

Due to the complex nature of the problems at hand, separate optimization at sub-system level has limitations and will generally not impact overall urban mobility performance. System-level collaboration between multiple stakeholders of different types is often required, leading to numerous partners being involved in urban mobility

Arthur D. Little Future of Urban Mobility Lab

The Future of Urban Mobility (FUM) Lab, launched in 2010, is Arthur D. Little's contribution to tackling the urban mobility challenge. With this lab, Arthur D. Little aims to support cities and nations in shaping the extended mobility ecosystems of tomorrow and facilitate an open dialogue between urban mobility stakeholders. The first global "Future of Urban Mobility" study, published in 2011, highlighted the mobility challenges cities face on a worldwide basis and introduced the first Arthur D. Little Urban Mobility Index, which assessed the mobility maturity and performance of 66 cities worldwide, and triggered high interest within the industry across the globe. January 2014 saw Arthur D. Little release the second version of the "Future of Urban Mobility" study, including an updated version of the Urban Mobility Index, with a wider scope of 84 cities worldwide as well as an extended set of criteria. The index finds most cities are still badly equipped to cope with the challenges ahead, indicating there is still significant potential for improvement. Arthur D. Little highlights what is holding cities back, and, together with its partner the UITP – the International Association of Public Transport – identifies three strategic directions for cities to better shape the future of urban mobility. The study also describes 25 imperatives to consider when defining sustainable urban mobility policies and feature case studies of cities demonstrating good practice.

For more information please contact François-Joseph Van Audenhove (vanaudenhove.f@adlittle.com)

ecosystems. As well as the usual groups, such as transport authorities, transport operators and infrastructure providers, other mobility providers and specialized players from other sectors can contribute to, and get benefits from, urban mobility ecosystems, as shown in Table 6. Ultimately, the success of any urban mobility strategy depends on how well ecosystems can be shaped to encourage innovative business models and integrated solutions. In an effective mobility ecosystem, all groups involved are clear on what their roles are and how value will be created. This implies mapping financial streams (e.g. sales revenues and concession fees) between the ecosystem's core members, as well as assessing the value creation on environmental and social levels. Development of integrated mobility platforms for personal mobility typically requires negotiation of a complex web of relationships with a wide mix of public and private stakeholders, as illustrated in Table 7.

In this integrated ecosystem, a critical role is that of "integrated mobility platform operator", responsible for planning, booking, payment and billing, thereby ensuring "one face to the traveler". From a business point of view, integrating different transport modes while ensuring real-time interaction with the customer requires:

- Creating and operating a platform that, via application programming interfaces, integrates the routing, booking and payment services of different mobility providers.
- Operation of a smartphone app that enables end users to access the platform and thus plan, book and buy their multimodal journey with a single click. Key success factors for setting up integrated mobility platforms include: extended ecosystem stakeholder management, devising a profitable business case, and technology integration.

Arthur D. Little Urban Mobility Index 2.0

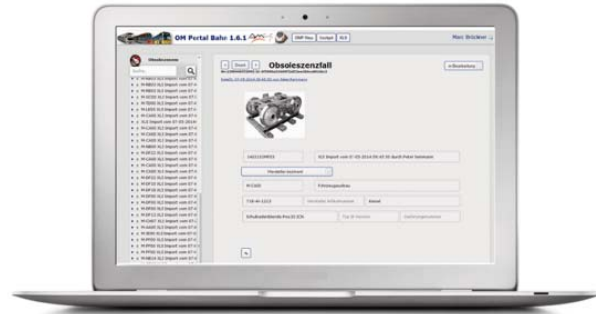
Second Edition, January 2014

Three examples of integrated mobility platforms worth mentioning include:

- SMILE (Vienna)** is a multimodal mobility platform and application run by the City of Vienna. Vienna's mobility integration approach involved a web of about 30 players, including mobility service providers (urban transport, rail, car, bike sharing, taxi and parking), connectivity providers, systems integrators and energy suppliers.
- Goroo (Chicago)** is a multimodal journey planner in the Chicago Metropolitan Region that was developed by the local transport authority in collaboration with the public transport operator, the traffic authority, the tourism bureau, the parking services provider, the regional transportation department and other stakeholders.
- Moovel (Daimler, Germany)**. Automotive OEM Daimler, which is active in the multimodal mobility business, developed its digital mobility assistant, "moovel". This is focused on its captive car-sharing service, car2go, as well as other third-party mobility services, such as taxis, public transport, bike sharing and carpooling.

Group	Rank	City	Index value
ABOVE AVERAGE GROUP	1	Hong Kong	58,2
	2	Stockholm	57,4
	3	Amsterdam	57,2
	4	Copenhagen	56,4
	5	Vienna	56,0
	6	Singapore	55,6
	7	Paris	55,4
	8	Zurich	54,7
	9	London	53,2
	10	Helsinki	53,2
	11	Munich	53,0
AVERAGE GROUP	12	Stuttgart	51,9
	13	Berlin	51,7
	14	Wuhan	51,1
	15	Madrid	50,3
	16	Hanover	50,1
	17	Brussels	49,7
	18	Seoul	49,3
	19	Tokyo	49,2
	20	Barcelona	49,1
	21	Shanghai	49,1
	22	Frankfurt	48,8
	23	Prague	47,8
	24	Warsaw	47,8
	25	Nantes	47,7
	26	Shenzhen	47,7
	27	Istanbul	47,2
	28	Beijing	47,2
	29	Guangzhou	47,2
	30	Santiago de Chile	47,1
	31	Kolkata	47,0
	32	Bogota	46,3
	33	Ankara	46,1
	34	São Paulo	45,7
	35	New York	45,6
	36	Montreal	45,4
	37	Moscow	44,4
	38	Toronto	44,4
	39	Curitiba	44,0
	40	Rio de Janeiro	44,0
	41	Mumbai	43,9
	42	Washington, D.C.	43,7
	43	Manila	43,6
44	Lima	43,5	
45	Saint Petersburg	43,4	
46	Sydney	43,1	
47	Tianjin	42,6	
48	Buenos Aires	42,4	
49	Mexico City	42,2	
50	Melbourne	41,9	
51	Lisbon	41,3	
52	Boston	40,9	
53	Rome	40,9	
54	Chennai	40,7	
55	Hyderabad	40,7	
56	Dubai	40,6	
57	Philadelphia	40,3	
58	Caracas	40,1	
59	Athens	40,0	
60	Ho Chi Minh City	39,8	
61	Karachi	39,5	
62	Kinshasa	39,4	
63	Dhaka	39,2	
64	Chicago	39,1	
65	Bangalore	38,9	
66	Osaka	38,5	
67	Los Angeles	38,1	
68	Portland	37,8	
BELOW AVERAGE GROUP	69	Jakarta	37,4
	70	Cairo	37,4
	71	Miami	37,3
	72	Lagos	37,1
	73	Addis Ababa	36,5
	74	Bangkok	35,0
	75	Johannesburg	35,0
	76	Houston	34,7
	77	Kuala Lumpur	34,6
	78	Dallas	33,8
	79	Delhi	33,5
	80	Lahore	33,1
	81	Tehran	33,0
	82	Atlanta	32,5
	83	Hanoi	30,9
	84	Baghdad	28,6

Obsolescence web portal rail



THE PORTAL PROVIDES ALL OPERATORS OF RAIL VEHICLES, AS WELL AS NATIONAL AND REGIONAL TRANSPORT COMPANIES THE OPPORTUNITY TO SHARE SPECIAL OBSOLESCENCE INFORMATION AMONG ALL REGISTERED MEMBERS.



Acute obsolescence management cases are publicly displayed and discussed for all members. Useful information could be uploaded with a special attachment function. All members can actively participate by using the comment function on all topics and share valuable information. Together members could

develop a problem solution or provide members with a specific and adaptable problem solution for free.

The membership for the Obsolescence Management Portal is at least 12 months. During this period, all registered members have unrestricted access to all content and information on the portal and could contact other registered members and exchange information at no additional charge.

Members benefit from the knowledge and experiences of other registered users. As the AMSYS obsolescence software, the portal uses the designation system for railway vehicles according to EN 15380-2. With the help of this classification, problems, analyzes, costs and solutions can be directly assigned to a classification code. The advantage of this designation is that the respective code is unique and standardized throughout Europe. With the use of the portal, timely information or adapted solution in case of obsolescence problems can result in several thousand Euros savings for members.

Your advantages at a glance:

- **Time**
Earliest possible obsolescence information which could affect you. No manufacturer is obliged to provide you with this information in timely manner.
- **Experience**
Benefit from the obsolescence experience of all other members.
- **Strength**
If several members are faced with the same obsolescence problem, you could act together and thus strengthen your position on the market.
- **Cost Avoidance**
Combine the advantages of this portal and minimize your cost and expenses for obsolescence management.



www.obsolescence-management.net



OBSOLESCENCE WEB PORTAL RAIL

TRAINING COURSE IN MUNICH

ON 30. APRIL 2014

WWW.OBSOLESCENCE-MANAGEMENT.NET

AMSYS GmbH

As a consulting company, the AMSYS GmbH was instrumental in the development and implementation of the obsolescence web portal for the railroad industry, organized the training of the four founding members and hosts the portal.



THE FOUNDING MEMBERS PROUDLY PRESENT THEIR CERTIFICATE OF INCORPORATION, PRESENTED BY AMSYS GMBH.

THE FIRST TRAINING FOR THE OBSOLESCENCE MANAGEMENT WEB PORTAL WAS HELD AT THE HILTON PARK HOTEL IN MUNICH ON 30. APRIL 2014. ALL FOUR FOUNDING MEMBERS WERE REPRESENTED. THE VAG TRANSPORT-CORPORATION NUREMBERG, THE BERLIN TRANSPORT COMPANY (BVG), THE DEUTSCHE BAHN AG (DB) AND THE SWISS FEDERAL RAILWAYS (SBB CFF FFS) WERE FAMILIARIZED WITH THE NEWEST FEATURES OF THE WEB PORTAL AND TRAINED IN HOW TO SHARE OBSOLESCENCE INFORMATION QUICKLY AND EFFECTIVELY.

The portal provides all operators of rail vehicles as well as national and regional transport corporations the opportunity to exchange information under all registered members on the subject of obsolescence issues.

Acute obsolescence management cases are published and discussed between all members of the platform. Members will jointly develop a problem solution, or provide members with a solution for a specific problem without any additional charge. The regular membership for the Obsolescence Management Portal is 12 months. During this time, all registered members have full access to all content and information within the portal. In addition, contact to other registered members and exchange of information is at no additional charge. Members benefit from the knowledge and experiences

of other registered members and will implement a joint sustainable solution for obsolescence problems.

The portal uses the same designation system for railway vehicles - the IEC 15380-2 - as our obsolescence software ARMIN. With the support of this classification, problems, analyzes, costs and solutions can be directly assigned to any specific codification. The advantage is the unique numbering and description all over Europe. So a unified and pan-European exchange of information is guaranteed.

Right information just in time or a quickly adapted solution to an obsolescence case can easily result in multi-thousand Euros cost savings.



Obsolescence-Cockpit by AMSYS GmbH

Obsolescence Management Cockpit

This is your information center. From here you can control through the whole website with its valuable obsolescence information.

The mapping is done with the help of IEC15380-2 (Designation system for railway vehicles).

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An Outstanding training provider

TQ RECEIVE OUTSTANDING CLASSIFICATION FROM NSARE



TQ are proud to announce that following an inspection by the National Skills Academy for Railway Engineering (NSARE), we received an outstanding classification in every area. The inspection looked into capacity to improve, learner outcomes, quality of provision and leadership and management, all of which achieved this outstanding classification!

NSARE was established to help tackle current and future skills requirements within the railway engineering industry. NSARE work with businesses to understand their demand for technical skills in the workplace ensuring that training providers are delivering what the industry needs.

We are thrilled to receive outstanding recognition in all the categories, which as you may expect is very rare for a training provider to achieve.

NSARE commented, "TQ's training is consistently of the highest quality and effectively balances underpinning knowledge, safe working practices and practical tasks" NSARE Bruce Cantrill, head of TQ Technical and Vocational, praised TQ for their commitment to training quality. "We are delighted to have been graded as OUTSTANDING in every single category with the latest NSARE inspection. This included our assessment capability, which

also received an OUTSTANDING classification and we feel these results vindicate our claim to be a leading provider of rail training in the UK. Moving forward, we will continue to work hard to commit to these fantastic achievements and maintain them." Bruce Cantrill – Director of TQ Technical and Vocational. As TQ progress in years to come, we aim to achieve this outstanding level as standard, ensuring our training is of the highest quality and we remain industry leaders across the board.

TQ have been providing training solutions to thousands of businesses and

contractors in the rail sector for over 20 years, ensuring engineers have the right knowledge, skills and legal certification required to work in the rail industry.

Discover the outstanding rail training courses that TQ Catalis can provide to your business by visiting www.tq.com/technical
Tel: 0845 880 8108
Email: technical@tq.com

TQ CATALIS





AN OPEN APPROACH TO PASSENGER INFORMATION DISPLAYS



An increasing number of clients are benefiting from the “open” approach to electronic information displays provided by Infotec Ltd. The British company’s in-house design and manufacturing capabilities enable customers to get the solution they need without extensive time-consuming and costly adaptations.

Infotec’s newly-developed T Series range of TFT displays offers customers a tool that can work for them. The Linux/Android platform is open for customisation whilst an optional SSP (Infotec’s Software Support Package) allows programmers to use standard languages such as C/C++.

Infotec’s Genius scripting can be used for ultra-low bandwidth applications such as passenger information displays whilst the HTML5 compliant browser offers numerous possibilities to today’s programmers. Infotec also offers a monitor-only variant of the product with standard HDMI input.

The entire Infotec range, manufactured at its headquarters in Leicestershire, employs standard components, open protocols and architectures in order to create displays that meet specific client needs.

At a recent conference, Infotec demonstrated this open approach with examples including P1124 platform displays (those on view had white LEDs and offered text to speech (TTS) functionality); and full matrix LED on-vehicle displays similar to those recently developed by Infotec for the light rail system serving JFK Airport in New York, USA.

Infotec Managing Director Tim Court says: “We have the capability to manage what clients are looking to achieve but the degree to which they use this is entirely up to them.

“We strive to offer completely open and flexible products and approaches.”

Over its 23-year history Infotec has a proven track record in manufacturing passenger information displays to meet customers’ needs in the rail, tram, on-vehicle and bus sectors, both in the UK and overseas.



Bottom Image: Infotec provided the main board for the Kings Cross redevelopment.
Top Image: Infotec manufactures a comprehensive range of on-vehicle displays.

We hope you have enjoyed our latest Railway-News Magazine, be sure to look out for our next edition.

We are now producing a magazine on a quarterly basis so please do not hesitate to contact at al@railway-news.com if you would to feature your latest technology in an upcoming edition and also please take a look at www.railway-news.com for all that latest Rail news, events and technology.



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