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MAGAZINE

The latest news & reviews from the industry

SIFER 2019

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Grand Paris Express Fact File

&

UNIFE: EU Investments for Innovation in Rail Transport

Issue One 2019 – SIFER Special


Between pathfinding
and pacesetting
there’s a bridge.
cisco
The bridge to possible

Letter from the Editor

Dear Readers, as it's March, it seems too late to wish you a happy new year, though of course the Chinese new year has only started recently and we are now in the year of the pig. On a positive note, I can wish you all a happy start to spring – at least meteorologically speaking!

Our first magazine for 2019 focuses on Sifer, which will take place in Lille (France) on 26–28 March. In addition to being an opportunity for suppliers to showcase their expertise and products, Sifer is also running an accompanying programme of events.

The opening day will see a series of round tables: Unife: "On the Road to Innovation: What EU Support for the Rail Industry?" (1:30pm–3pm); Capgemini: "Big Data as the New Value Enabler to Ensure Maintenance Transformation of SNCF Réseau" (1:30pm–2:30pm); BTP Rail: "Railways in the Digital Age" (3pm–4pm).

Accompanying this, we have an in-depth feature by Unife discussing EU support for the rail industry. If you can't make their round-table or you want reference material without being distracted during the talk, then this article is for you.

One of the main discussion points at Sifer this year will be the Grand Paris Express project. The organisers say about the event that its "primary focus is to serve as a showcase for the industry, casting the spotlight on the direction in which it is heading, its upcoming innovations, and its emblematic projects". Consequently, we have two pieces for you about the Grand Paris Express. Firstly, we have our Grand Paris Express Fact File, which gives you a quick and clear overview of the project. And secondly, GPE have written for us about the project, where it's at, what rolling stock to expect and much more.

We haven't stopped there, however! Libor Lochman, Executive Director of The Community of European Railway and Infrastructure Companies (CER) and Ethem Pekin, Senior Environmental Economist – Sustainability Affairs for the organisation discuss how the rail industry is acting on the European Commission's priorities for climate neutrality.

And by no means lastly, in 'Ticket to Ride' Danny Elia takes a look at an infrastructure project on the other side of the world, namely the AirRail Link, which aims to connect Melbourne to its airport.

Our next issue, due to be published in April 2019, will focus on Railtex, held in the United Kingdom. As always, we will keep you informed of all the highlights of the show. If you would like to be represented on our website or in our magazine, please contact Andrew Lush at al@railway-news.com.

Please enjoy our 1st issue of 2019!

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If you would like to submit editorial content, or you are interested in giving an interview for the magazine, please contact **Josephine Cordero Sapién**. If you would like your company to join Railway-News's online platform, please contact **Andrew Lush**.

To subscribe to our newsletter, visit **www.railway-news.com**.

COVER: Rendering of Saint-David Pleyel Station © Société du Grand Paris / Agence Kengo Kuma Associates

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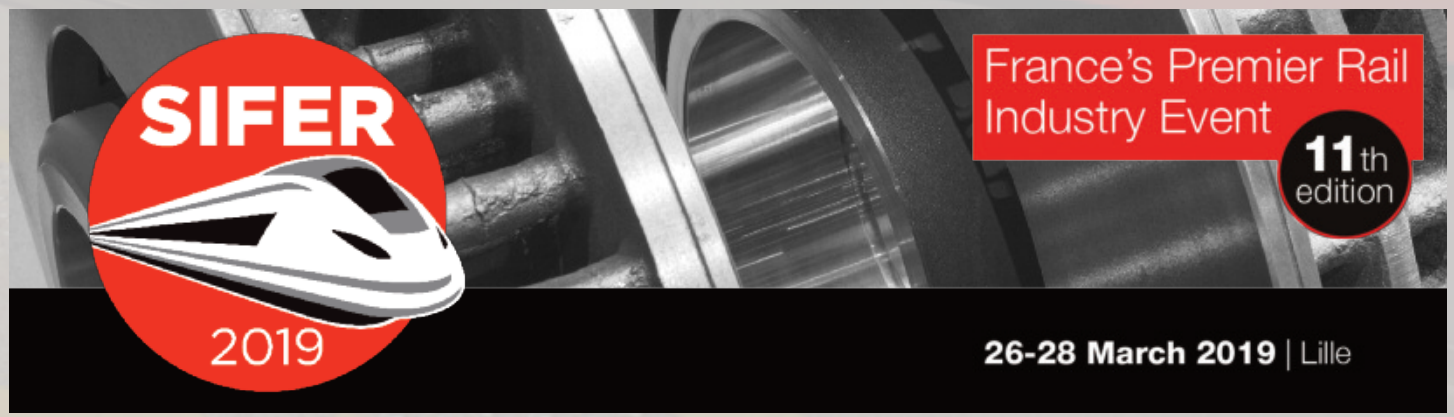

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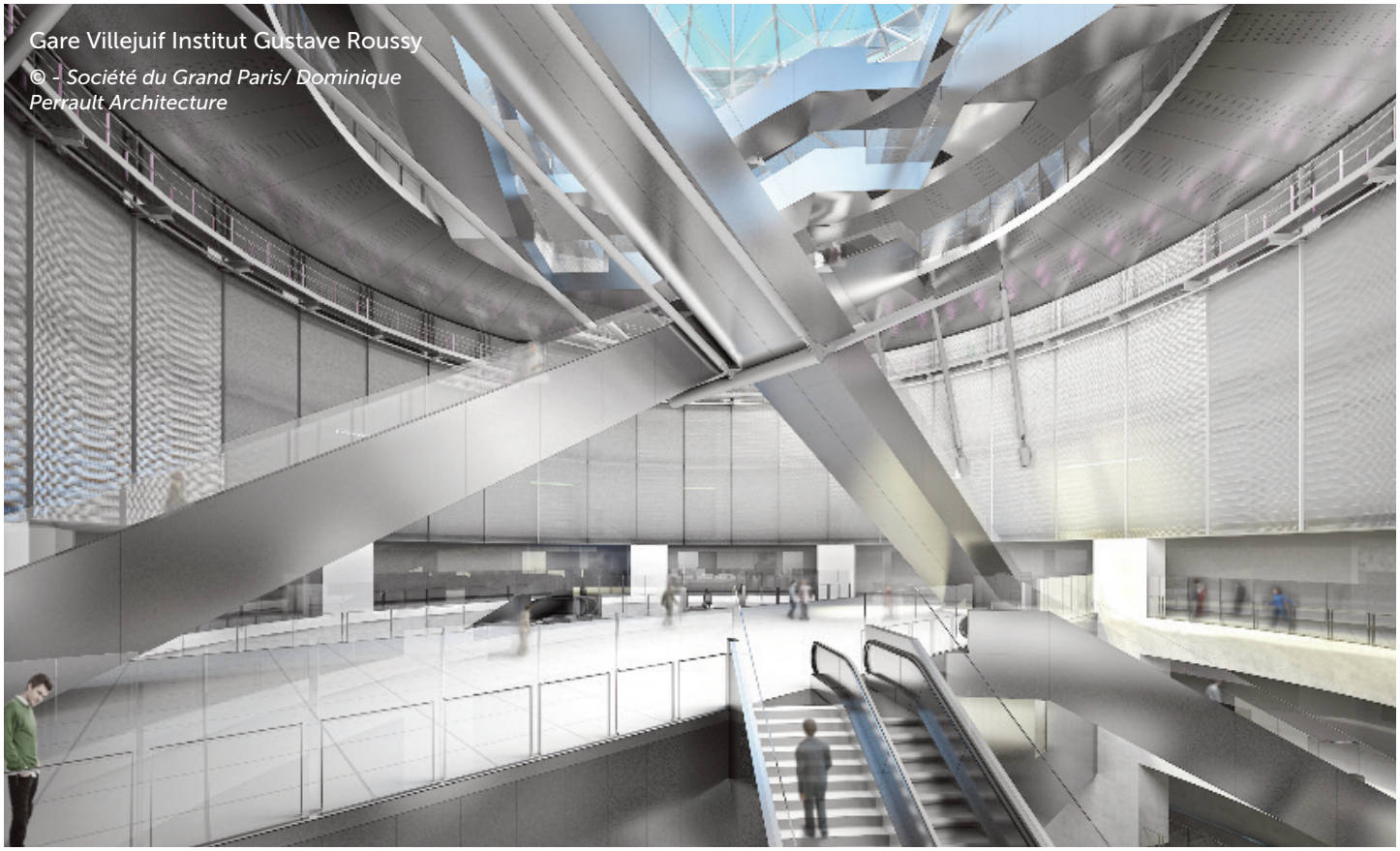
The Grand Paris Express Fact File

By Josephine Cordero Sapién

What is it?

The Grand Paris Express is a rapid transit system for the Île-de-France region (Paris and its surrounds) – the most populous of the country's 18 regions. At 200km in length, the Grand Paris Express project is set to double the length of the current metro network.

Gare de Nanterre



Gare Villejuif Institut Gustave Roussy
© - Société du Grand Paris/ Dominique Perrault Architecture

The project includes the following construction elements:

- **Extension of Line 11 to the northeast**
- **Extension of Line 14 to both the north and south**
- **Construction of new Line 15**
- **Construction of new Line 16**
- **Construction of new Line 17**
- **Construction of new Line 18**

Key Players

- **SGP (Société du Grand Paris): the overall project owner. SGP was established in 2010 (The project will receive 30% of its funding from central government via SGP)**
- **RATP (Régie Autonome des Transports Parisiens): RATP operates the metro system is Paris**
- **Île-de-France Mobilités, the organisational authority controlling and co-ordinating the public transport operators in the Île-de-France region such as RATP and SNCF Transilien**

Line 11 Extensions

The extension to this line will provide better connections between the Parisian suburbs to the northeast and the capital. The extension comprises two phases: Phase 1, an extension from Mairie des Lilas to Rosny-sous-Bois, which is a five-kilometre extension with six stations; and a further extension, Phase 2, to Noisy-Champs.

Phase 1 Status: Under Construction

- **Preparatory drilling in Rosny-sous-Bois in 2015, with construction proper beginning in 2016**
- **Planned commissioning date: 2022**
- **Overseen by RATP and Île-de-France Mobilités**

Phase 2 Status: Planning

- **The layout is still under examination**
- **Planned commissioning date: 2025**
- **Overseen by SGP**

Line 11 Rolling Stock

A rubber-tyred line, the rolling stock in operation here is of the type MP59. These electric multiple units were manufactured by a consortium between CIMT-Lorraine, Jeumont-Schneider, Alstom and CEM. They were first introduced to the Paris metro system in 1963. The proposal is for the MP59 rolling stock to be replaced by Alstom's MP14 trains, one of which is currently undergoing dynamic testing on Line 1. There is also one MP73 train in operation on the line.

Line 14 Extensions

This line is to be extended at both ends, north and south. The northbound extension is broken down into two phases: from Gare Saint-Lazare to Mairie de Saint-Ouen; and then from Mairie de Saint-Ouen to Saint-Denis Pleyel. The southbound extension will also come in two parts: from Olympiades to Villejuif Institut Gustave-Roussy; and then from Villejuif Institut Gustave-Roussy to Orly (airport). Phase 1 comprises the initial northbound extension, Phase 2 the second northbound extension as well as the initial southbound extension, and Phase 3 then comprises the final southbound extension.

Phase 1 Status: Under Construction

- **Construction began on the first northbound section in 2014**
- **The commissioning of this first northbound section is set for 2019–2020**
- **Overseen by RATP and Île-de-France Mobilités**

Phase 2 Status: Under Construction

- **Construction of the second northbound section and the initial southbound section began in 2016**
- **The planned commissioning date for both sections is 2023**
- **Overseen by SGP**

Phase 3 Status: Under Construction

- **Construction works on this section began in 2016**
- **The estimated commissioning date is now 2024, three years earlier than initially believed**
- **Overseen by SGP**

Line 14 Rolling Stock

Line 14 has been a fully automated line from the start. There are two types of rolling stock currently running on the line: MP89 and MP05 trains. Of the former, Paris actually operates an automated and a non-automated version. Like Line 11, Line 14 takes rubber-tyred electric multiple units. Both the MP89 and MP05 rolling stock is manufactured by Alstom. New rolling stock, MP14 trains, are being introduced on this line. Dynamic testing is currently under way on Line 1.

New Construction: Line 15

Line 15 is to be a high-capacity underground ring line around Paris. It will allow passengers to travel between the suburbs of Paris without having to change trains in the city. Of the four new lines being built, Line 15 will be the first to enter service. It is also the longest metro line on the network. It

Continued on p.13...

Gare Saint-Denis Pleyel

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...continued from p.11

will have 37 stations and be 75km long. Construction will take place in three phases:

Phase 1 is the southbound section of the ring line. It will have 16 stations, be 33km in length and run under the Marne and the Seine twice each. It will connect Pont de Sèvres in the west to Noisy-Champs in the east via Champigny Centre.

Phase 2 is the 20km western section of this line and will be built in two stages. The first stage will connect Pont de Sèvres to Nanterre, connecting five stations, while the second stage will connect Nanterre to Saint-Denis Pleyel in the north, connecting six stations.

Phase 3 then is the 23km eastern section of this ring line. It too will be built in two stages. Stage one will connect 9 stations, Saint-Denis Pleyel to Rosny-Bois-Perrier, while stage two will connect 4 stations, from Rosny-Bois-Perrier to Champigny Centre.

Ligne 15 Sud – Phase 1 Status: Under Construction

- **Construction began on 4 June 2016**
- **The original commissioning date was 2022, but in 2018 the President of Delivery Organisation at SGP said this section would almost certainly not be ready before 2025**

Ligne 15 Ouest – Phase 2 Status: Under Construction

- **Preparatory work began in May 2017**
- **Both stages have a commissioning date of 2030**

Ligne 15 Est – Phase 3 Status: Declaration of Public Utility Confirmed

- **The eastern section of Line 15 obtained its declaration of public utility in February 2017.**
- **Both stages have a commissioning date of 2030**

Line 15 Rolling Stock

Unlike Lines 11 and 14, Line 15 will use conventional steel wheels. The power source for these trains will be via overhead lines (as will be the case for Lines 16 and 17 too). The trains for this line, as well as for Lines 16 and 17 will have a width of 2.80m. Alstom was selected as the preferred bidder in May 2018. The rolling stock contract for Line 15 is for 133 six-car trains. Of the six cars, four will be powered vehicles. Each car will be 18m long.

Gare Saint-Denis Pleyel
© - Société du Grand Paris/ Agence Kengo Kuma Associates

New Construction: Lines 16 and 17

Lines 16 and 17 will share some of their track. Line 16 will be 29km in length, Line 17 27km, with Line 16 serving ten stations and Line 17 serving nine stations. Line 16 will connect Saint-Denis Pleyel to Noisy-Champs, essentially Like the eastern section of Line 15, but at a greater circumference outside of Paris. Line 17, meanwhile, will run from Saint-Denis Pleyel in a northeast direction to Le Mesnil-Amelot. It will link up to two airports en route: Le Bourget Aéroport and the major Aéroport Charles de Gaulle. It consists of two sections: the southern section will be 6.5km in length and connect Saint-Denis Pleyel to Le Bourget-RER – this is the section of track Line 17 has in common with Line 16. The second northern section will be 20.5km in length, of which around 6km will be over ground. It will run all the way to Le Mesnil-Amelot.

Line 16 Status: Under Construction

- **Following the Declaration of Public Utility in December 2015, the preparatory works got under way in February 2016**
- **The first civil works started in February 2018**
- **The section between Saint-Denis Pleyel and Clichy-Montfermeil (which includes the track for Line 17 South) has a commissioning date of 2024**

- **The section between Clichy-Montfermeil and Noisy-Champs has a commissioning date of 2030**

Line 17 North Status: Under Construction

- **The Declaration of Public Utility for the northern section occurred in February 2017. Initial preparatory works then took place in 2018**
- **The first civil works for Line 17 North began in 2019**
- **Commissioning date for the section Saint-Denis Pleyel to Le Bourget Aéroport: 2024**
- **Commissioning date for the section from Le Bourget to Triangle de Gonesse: 2027**
- **Commissioning date for the section from Triangle de Gonesse to Le Mesnil-Amelot: 2030**

Lines 16 and 17 Rolling Stock

Last year Alstom was selected as the preferred bidder for the rolling stock for these lines. The contract is for up to 50 three-car trains that will be 2.80m wide with each car being 18m long. Of the three cars, two will be powered vehicles.

New Construction: Line 18

Like Line 16, which mirrors a section of Line 15 but further out of Paris to the east, Line 18 does the same to the southwest. It will connect Aéroport d'Orly with Versailles Chantiers. It is also proposed to then extend Line 18 from Versailles Chantiers to Nanterre-La Folie, where it would join up with Line 15. The section between Orly Airport and Versailles Chantiers will serve ten stations. This automated metro will be 35km in length.

Line 18 Status: Preparatory Works Under Way

- **Regarding the section between Orly Airport and Versailles Chantiers, the Declaration of Public Utlity was obtained in March 2017 with preparatory works taking place in January 2018**
- **The section between Aéroport d'Orly and CEA Saint-Aubin has a commissioning date of 2027**
- **The section between CEA Saint-Aubin and Versailles Chantiers has a commissioning date of 2030**

Line 18 Rolling Stock

Like Lines 15, 16, and 17 the rolling stock on this line will use conventional steel wheels. However, unlike the trains for those lines, the rolling stock on Line 18 will use a third rail. They will also be narrower, at 2.45 metres.

Gare Clichy-Montfermeil

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The Benefits and Future of Mobile Maintenance

From Network Rail and Deutsche Bahn to BaneNor and JR East, leading railway infrastructure maintainers from across the globe are increasingly turning to Robel's Mobile Maintenance System (ROMIS System) to improve work safety and efficiency in track maintenance. So what is this system and what benefits can it bring?

As railways continue to grow and networks become increasingly busy, the opportunity to deliver safety-critical maintenance becomes ever more difficult. There is a greater need to gain rapid access to track with labour, plant and materials in a secure environment and to use cutting edge technology to optimise production. This is at the heart of what ROMIS delivers.

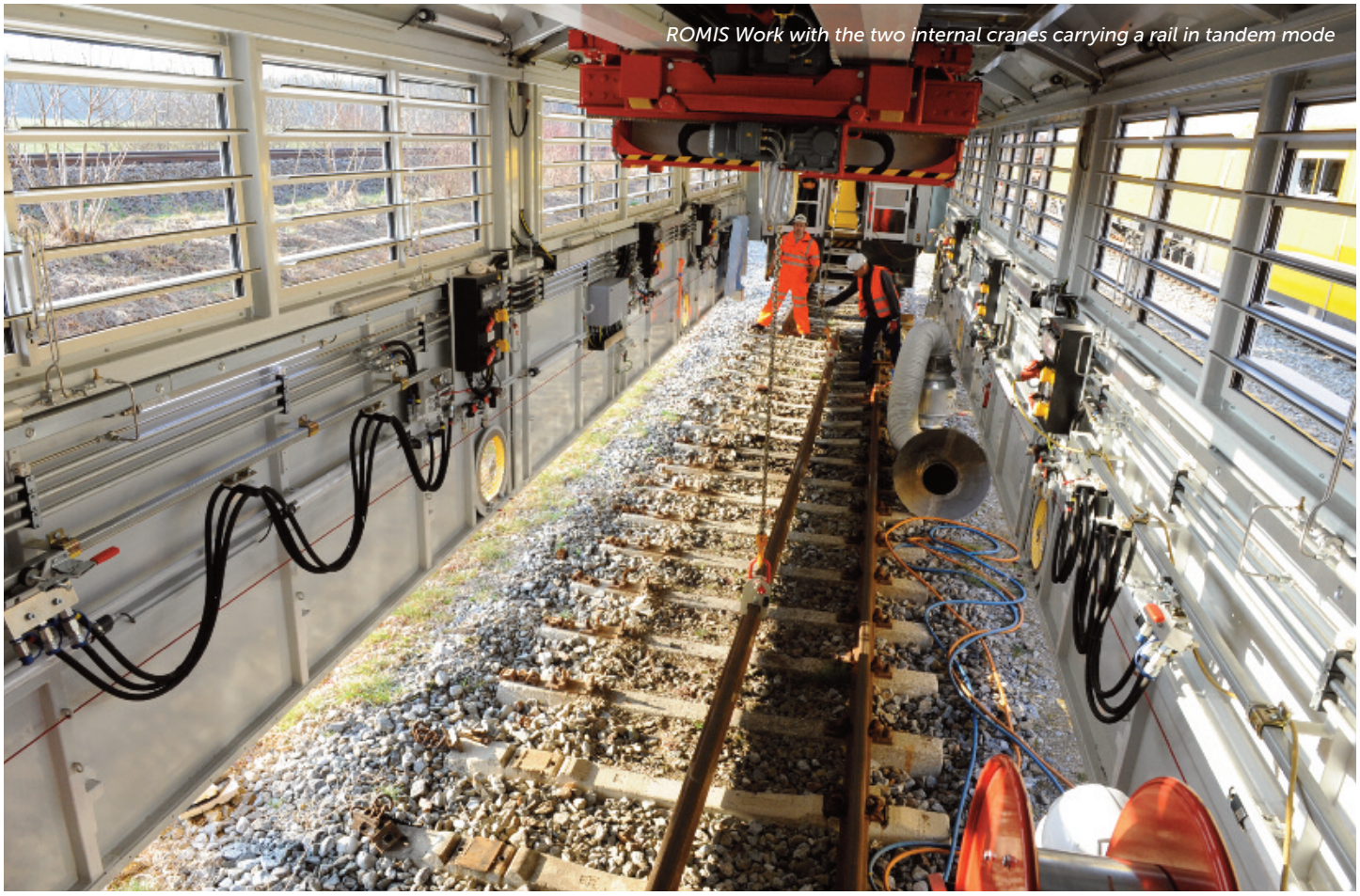
How the system works

ROMIS is a self-sufficient 'workshop on wheels'. It is an engineering train that transports all your work requirements directly to the site.

Its design allows staff direct access to track from within the train, offering a well-lit, safely enclosed work environment, protected from the effects of weather and trains running on other lines. Safeguarded directly by the signalling system, and without the need for overhead isolation, staff are ready to work within minutes of arrival on site. In this way, ROMIS allows maintenance to be delivered in the most difficult of track locations, such as tunnels, stations and complex busy networks. On urban railways, where reduction of noise and light pollution is critical for our lineside neighbours, ROMIS, with its enclosed worksite, again provides the ideal solution.

The ROMIS system normally consists of three elements: ROMIS Supply, Store and Work. ROMIS Supply is the powerhouse of the train, supplying traction for transport and energy for all on-board equipment. The supply unit

The ROMIS standard three-unit system



ROMIS Work with the two internal cranes carrying a rail in tandem mode

also has on-board welfare facilities for up to eleven staff and a workshop for repairs. ROMIS Store contains all the plant and materials for work. This unit features under-floor storage for rails, as well as lifting platforms and retracting sidewalls to aid loading. ROMIS Work is at the core of the system, allowing workers direct access to the track. With moveable sidewalls to increase the working area and integrated lighting and power the system forms the perfect platform to deliver track maintenance. The system can also be operated in creep mode, allowing mobile work sites. All of these functions are supervised from a single control desk within ROMIS Work.

Different options of rail storage in ROMIS Store

To minimise manual handling and set up time, two internal cranes are used to move all plant & materials between the store and work units. To further maximise production and safety, Robel have designed a number of specialised handheld equipment for all maintenance tasks. So whether it be re-padding or sleeper changing, re-railing or wet bay removal, Robel strive to develop not just the ideal working platform, but the complete solution to optimise the working process.

ROMIS Compact, length 23 m

Unit ROMIS, length Europe 49.8 m, length UK 45.7 m

Unit ROMIS, length Europe 70.5 m, length UK 69.5 m

ROMIS Modular Concept, length approx. 92 m

ROMIS Modular Concept, length approx. 112 m

ROMIS concepts available from one unit compact to the multi-purpose ROMIS Modular

The future of mobile maintenance

In the coming years, the challenges for network operators are decreasing time slots and steadily rising health, safety and environmental awareness. In order to meet these requirements and at the same time set new standards, Robel are seeking to advance ROMIS in a number of ways. The first goal is to increase the functionality of the system to expand the number of working tasks. A vacuum system is being developed to improve the efficiency of clearing ballast from the track to aid tasks such as wet bay removal, re-sleepering and clearing debris around switches. Another new design is a sliding door on the ROMIS Work sidewall to permit access to the trackside. This expands the functionality of the workspace allowing access to lineside assets such as point machines, drainage and rail lubricators. To gain access to high-lever assets there is now an option for a working platform to be incorporated into the roof of ROMIS Store complete with internal access steps and automatically deployed safety handrails. To streamline the rail replacement process, new rail storage and automatic stressing equipment is mounted to the ROMIS Work sidewall.

The purpose-built rail grinder in action

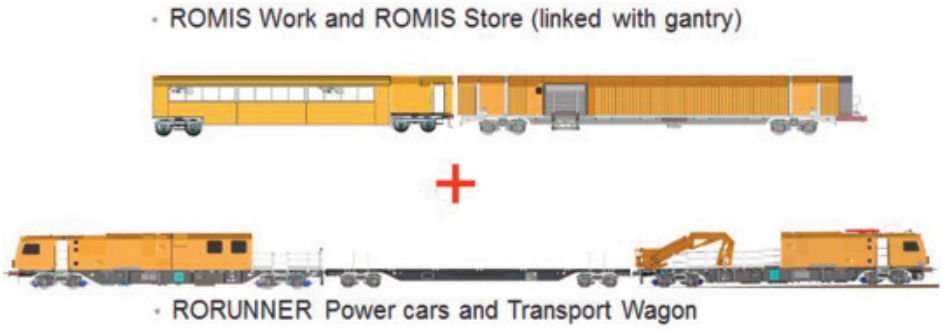


Illustration of the combination ROMIS Work (with no cab), ROMIS Store, RORUNNER with welfare, flat wagon, RORUNNER with crane.

ROMIS Work Basic: the economical solution

ROMIS has evolved – in response to customer needs – into a highly sophisticated automated system. For many private or smaller railway maintenance companies, however, this degree of automation is not required and adds unnecessary costs. Robel have therefore responded to this need and developed a modular, off-the-shelf ROMIS Basic solution reducing costs whilst still delivering the fundamental benefits.

The standard ROMIS solution consists of three units. Now, with ROMIS Basic, the customer can select whether to have the power unit, or use their own locomotion, whether they want a store and work unit or just the work unit. Optional features and automation, such as the internal crane, creep mode and sidewall control, can be individually selected, similar to selecting options on a new car. ROMIS Basic still delivers the fundamental benefits, but can now be bought for a quarter of the cost of a full system with its own traction power.

Internal shots of the welfare unit and workshop in ROMIS Supply

ROMIS Modular: the flexible solution

Robel are also developing options to combine ROMIS with a system called RORUNNER, a multi-purpose maintenance system with power cars, flat wagons and work modules. The power cars come in three designs: as a flatbed, with a welfare unit or with a large crane. In the combined configuration ROMIS Work (with or without drivers cab) and ROMIS Store could be joined with the multi-purpose maintenance train to bring together the best of both systems. Auto-couplers mean that Robel can move away from the fixed ROMIS three-unit system. Transport flat wagons with standard container twist lock fixing can be included, allowing the introduction of work modules such as a drainage system or scissors lift. This ROMIS/RORUNNER combined system would therefore retain all the benefits of ROMIS but have a stronger multi-purpose functionality. Whatever the task, there's a vehicle combination to solve it. **www.robel.com**

Rendez-vous at Lille Grand Palais 26–28 March

For France's Premier Rail Industry Event

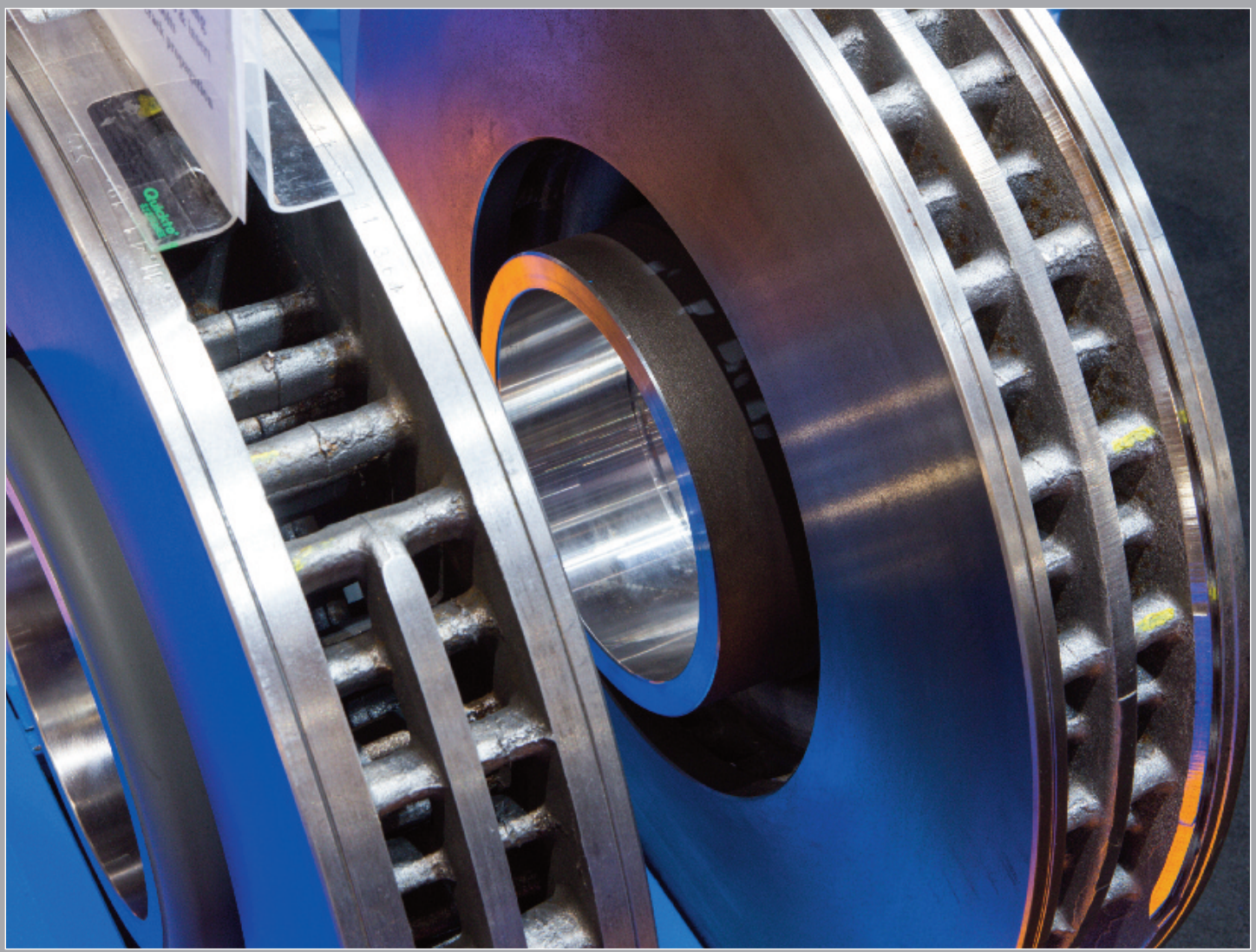
SIFER 2019

Within the space of 20 years SIFER has become the must-attend international event for stakeholders from across all sectors of the railway industry, from major industry contractors, equipment manufacturers, suppliers and sub-contractors, to public transport operators and management authorities. **Hosted biennially in Lille, in the heartland of the French railway industry and one of the most dynamic regions in Europe, SIFER provides industry professionals with a unique opportunity to keep track of market trends, meet face-to-face, exchange ideas and explore new avenues for business.** For instance, it was at SIFER that the network of rail-industry clusters was formed.

Already in full swing: to date, some 400 businesses from 17 countries have already confirmed their presence at SIFER 2019. 149 of them will be participating for the first time. Among the ranks of registered exhibitors are several digital technology companies and business start-ups. SIFER 2019 will be the 11th time the event is held. And what's more, by taking up at least 7 percent additional floor space at the Lille Grand Palais compared to 2017 it will also be the largest SIFER to date.

In 2019, SIFER will be opening up more exhibition space to accommodate the increasing number of businesses that wish to showcase their innovations during the 3-day event, but also to enhance the visitor experience.

The show programme is beginning to take shape and already promises a number of emblematic events by prominent partners, including a round-table discussion hosted by **UNIFE** on EU support for innovation in the rail industry; an event hosted by **Ville, Rail & Transport**, evocatively entitled "Does the European rail industry need a champion?"; several events with a focus on digital technologies, including a conference hosted by **BTP Rail**



and the **i-Trans-ERCI** Innovation Awards ceremony; and an event hosted by **FIF** on the new French rail-industry pact.

This 11th SIFER comes at a critical time for the railway industry. **As always, SIFER's primary focus is to serve as a showcase for the industry, casting a spotlight on the direction in which it is heading, its upcoming innovations and its emblematic projects**. The "Grand Paris" project and the digitalisation of the industry will be at the centre of discussions. Autonomous trains, predictive maintenance, project, route and data security, track maintenance, access to passenger information, the opening up of the passenger transport market, job roles of the future... are just some of the topical issues that will be addressed at highlight events hosted by SIFER partners and throughout the aisles of the exhibition.

Two years ago, the 10th SIFER exhibition attracted some 4,900 visitors. By all accounts, this 11th show is gearing up for more of the same.

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In recent years, the German (Thuringia) power supply manufacturer MTM Power® has increasingly developed into one of the leading power supply manufacturers for railway applications in Europe.

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MTM Power's Headquarters Mellenbach/Thuringia

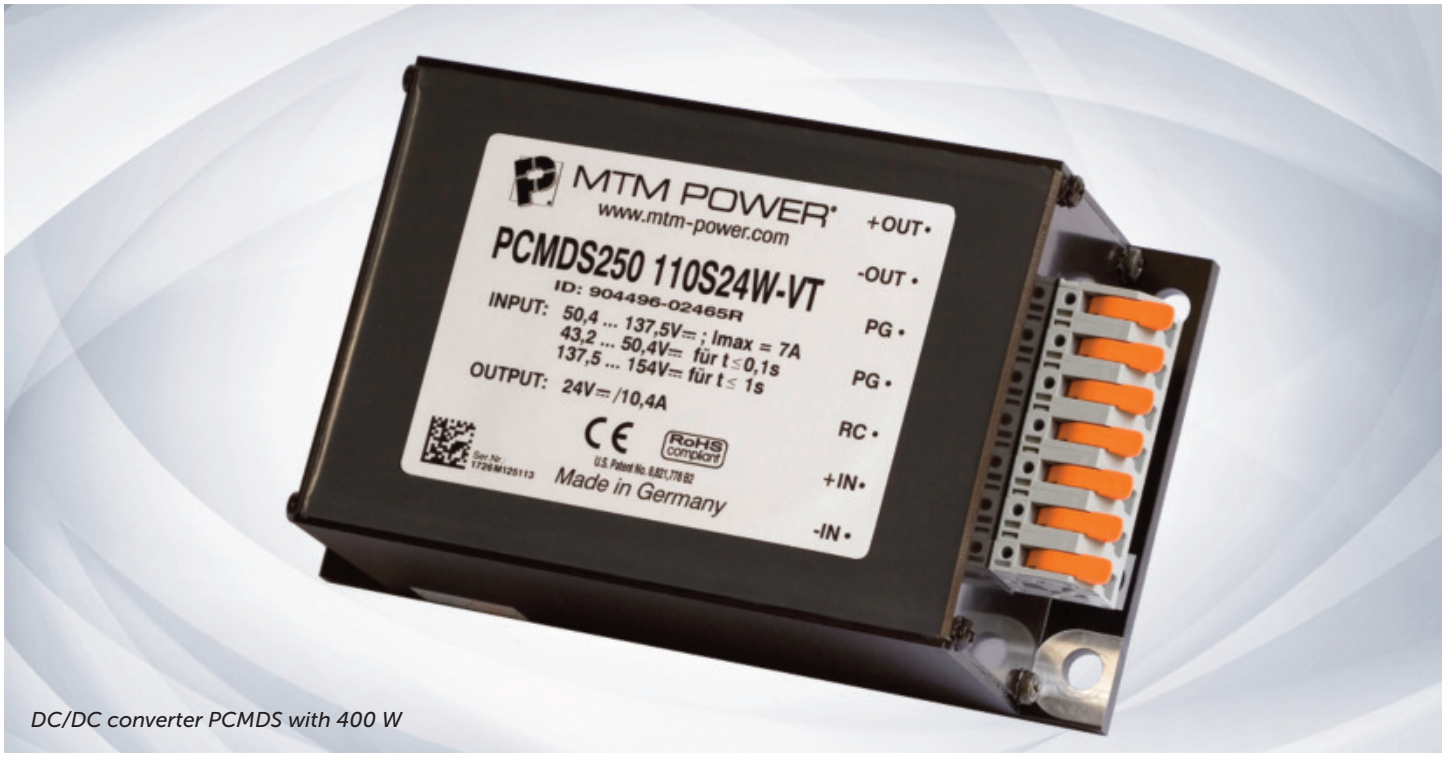
various features such as "Power Good" signalling and stand-by operation.

The converters with an output voltage of 24 VDC deliver an output power of 400 W. The design of the output voltage with U/I (constant voltage/constant current) characteristic allows critical loads to be supplied and batteries to be charged (optional Uout=27.6 VDC). Two input voltage ranges according to EN 50155 are available: 72 VDC (43.2...100.8 VDC) and 110 VDC (66...154 VDC) which allow the operation of the DC/DC converters on common battery or on-board networks in Europe, in trackside applications and in stationary railway systems.
The devices have got an "Output Voltage OK" signal as potential-free contact as well as remote control to place the converter in a standby mode with the lowest power consumption. An undervoltage shutdown protects the converter as well as the application from damage during "brown out" effects of the supply voltage. Using a primary-related control input RC (Remote Control), they can be put into stand-by mode, which has the lowest power consumption. In doing so they contribute to a longer availability of the supplied systems, especially during battery operation. The DC/DC converters are now connected via push-in cage clamp connectors with lever, which are designed for wire cross sections up to 4 mm^2. Designed for an operating temperature range of -40 to +70 °C (class TX according to EN 50 155) the cooling is guaranteed either by the integrated heat sink (option WK) or by mounting the base plate on a heat-dissipating surface. Due to their compact design, the converters are suitable for applications where only little space is available. Furthermore, they are robust against mechanical stress such as shock and vibration. The maintenance-free converters are vacuum-potted (EP 1 987 708, U.S. Patent No. 8,821,778 B2) and offer reliable protection against condensation, conductive dust and other environmental conditions.

A version with protection degree IP67 is possible on customer request. The compact dimensions of 170 mm x 110 mm x 38 mm (length x width x height) and the high packing density allow an efficient, cost-saving solution for different power supply tasks.

Besides these rail converters, the MTM Power product range includes transformers, filters and multi-power supply systems up to 2kW. MTM Power is also able to create relatively small volumes of custom-made products and modifications of existing products in a short period of time.

MTM Power Messtechnik Mellenbach GmbH
Germany
Tel.: **+49 (0) 69 / 1 54 26-0**
Fax: **+49 (0) 69 / 1 54 26-10**
Email: **info@mtm-power.com**
URL: **www.mtm-power.com**



DC/DC converter PCMDS with 400 W

UNIFE:

EU Investments for Innovation in Rail Transport

By Tommaso Spanevello, Public Affairs Manager, UNIFE

Tommaso Spanevello-UNIFE Public Affairs Manager

Research and innovation ("R&I") represent a vital area of activity that is widely recognised as a strategic priority for the European rail supply industry, which employs approximately 400,000 people all over Europe. According to data compiled by the OECD, our industry currently invests around 2.7% of its annual turnover in R&I activities. With international competition getting ever fiercer, and suppliers in other parts of the world catching up fast, staying at the forefront of research and innovation is absolutely essential for Europe's rail supply industry to maintain its technological leadership.

R&I and innovative technologies have contributed to the continuing growth of the rail passenger market in Europe (including light rail, tram and metro lines). As the association representing Europe's rail supply industry, UNIFE made a major contribution to the 'Rail 2050 Vision', which was published in 2017 by ERRAC[1] – the European Rail Research Advisory Council. This publication stresses that, in order to fully realise the opportunities offered by new technologies, the level of EU and national investment in rail-related R&I activities must be increased. Accordingly, the total amount of funding (from both public and private sources) required for rail-related R&I investments in Europe over the next thirty years could be greater than 250 billion euros.

UNIFE is convinced that rail-related research and technological progress, led by the rail supply industry, would offer the possibility to transform the sector dramatically. Moreover, as ERRAC points out, the future of the rail sector depends to a great extent

Driverless metro train on Line 1, Paris

on its flexibility and its ability to adapt to and incorporate technological advances. In this regard, the importance of continuing the Shift2Rail Joint Undertaking (JU) beyond 2020 cannot be stressed enough. Shift2Rail, established in 2014 with a budget of 920 million euros and supported by the European Union in the framework of the Horizon 2020 programme, has brought continuity, stability and a long-term vision to R&I activities in Europe. Through its collaborative research principle, built on an institutional public-private partnership (PPP), Shift2Rail has been able to stimulate the whole of Europe's rail's innovation ecosystem – including start-ups, SMEs, larger companies, academics and Research Technology Organisations (RTOs) – to work together on valuable projects that are contributing to significant advances in the development and application of new technologies.

The increasing need for shared and sustainable transport, together with digital technologies and intermodal mobility solutions, provides a compelling argument for the extension of Shift2Rail beyond 2020. In this context, UNIFE has developed an R&I vision for the future Shift2Rail, namely nine priority areas or 'key-

UNIFE has developed an R&I vision for the future Shift2Rail, key-enablers – ranging from automated rail transport, digitalisation and 'mobility as a seamless service' to 'maintenance of the future' and optimised infrastructure.

enablers' – ranging from automated rail transport, digitalisation and 'mobility as a seamless service' to 'maintenance of the future' and optimised infrastructure, among others. By focusing our R&I efforts on these priorities, the European rail supply industry is fully committed to ensuring that rail transport will become the backbone and system integrator of sustainable mobility. In order to reach this objective, our industry is ready to continue co-operating with mainline and urban rail operators alongside other stakeholders.

In this context, UNIFE is closely following the on-going discussions and decisions that will determine the future budgetary capacity of the European Union, notably in the framework of the negotiations on the so-called Multi-Annual Financial Framework (MFF) for the years from 2021 to 2027. In particular, we are making the case for an extension of Shift2Rail, with an increased level of funding for rail-related R&I activities to be provided under the umbrella of the Horizon Europe programme, which is due to be launched in 2021.

UNIFE welcomedtheoriginal proposal by the European Commission to increasethe budget for Horizon Europe compared to Horizon 2020. In fact, looking at the different financial envelopes which make up the forthcoming Multi-Annual Financial Framework, R&I stands out as one of the very few areas which wouldsee an increase. UNIFE was also pleased to see the implicit acknowledgment that R&I is a matter of essential importance for a successful, modern economy, and it must also be at the heart of the European Union's policies to decarbonise our economy whilst at the same time boosting economic growth, employment and social inclusion.

As the negotiations on the future EU budget enter their final phase, UNIFE is continuing to call on the European Institutions to be more ambitious and increase the budget for the Horizon Europe framework programme. Furthermore, we are arguing that the resources devoted to mobility within Horizon Europe should also be increased, due to the significance that transport, together with energy and climate, has for the economy and society.

As we all know, mobility is particularly relevant to some of the most compelling mega-trends such as decarbonisation and urbanisation. We strongly believe that rail transport can play a fundamental role to address these challenges, if properly supported with adequate resources to further develop and deliverits true potential.In this regard, the expansionofEuropeanfunding for rail-related R&I activities must be a priority within the future EU budget, and Europe's rail supply industry is also ready and determined to play its part!

UNIFE will host a discussion on the topic of EU rail-related innovation investments at SIFER 2019 on 26 March 2019 in Lille, France.

UNIFE at SIFER 2019:

Round Table: "On the road to innovation: what EU support for the rail industry?"

Forum 1: 13:30–15:00

UNIFE Stand: 2/154

Shift2Rail Stand: 2/136

[1]*https://europe.uic.org/IMG/pdf/122017_errac_rail_2050.pdf*

SENSIT

temperature humidity CO_2 atm. pressure VOC

Sensors
Converters
Switches

EN 61373
EN 50121-3-2
EN 50155
EN 45545-2
NFPA 130

www.railwayvehicles.com

SENSIT

Manufacturer of Sensors, Switches and Converters for Railway Vehicles

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SENSIT s.r.o. has been producing temperature sensors since 1991. The company has been engaged in the development, production and supply of special sensors, switches and converters for railway vehicles since 2004.

In the past few years, the range of temperature sensors for rolling stock was supplemented with sensors of other physical quantities, such as relative humidity sensors, CO2 concentration sensors, atmospheric pressure sensors and VOC (volatile organic compounds) concentration sensors. For the rolling stock segment, SENSIT s.r.o. also manufactures converters (temperature-current, temperature-voltage, temperature-CAN protocol) and temperature switches (electronic and bimetallic).

temperature | humidity | CO_2 | atm. pressure | VOC

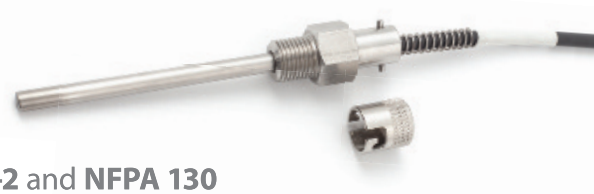
All products of SENSIT s.r.o. designed for application in the rolling stock segment meet the specific requirements defined in so-called railway standards

EN 50155, EN 61373, EN 50121-3-2, EN 45545-2 and **NFPA 130.**

These requirements mainly include resistance to shock and vibration, electrical safety, compliance with fire standards and, for electronic components, EMC compliance. All these requirements are taken into consideration during development – this is confirmed with a test report and a certificate issued by an independent accredited testing laboratory.

The production of sensors, switches and converters itself is subject to special manufacturing technologies and procedures to ensure the required product quality. The high quality of SENSIT s.r.o. products is ensured by output inspections and a cycling process that reveals critical sensor defects between 7 to 10 cycles in the temperature interval of -10 to 80 °C.

SENSORS, SWITCHES AND CONVERTERS MANUFACTURED BY SENSIT S.R.O. MEET THE FOLLOWING STANDARDS



- Insulation test in accordance with **EN 50155**
- Shock and vibration test in accordance with **EN 61373**
- Electromagnetic compatibility in accordance with **EN 50121-3-2**
- Fire protection on Railway Vehicles in accordance with **EN 45545-2** and **NFPA 130**

One of the parameters by which the degree of reliability of a particular product can be expressed is the Mean Time to Failure (MTTF). Besides other methods, this parameter can be determined from the results of sophisticatedly specified accelerated durability tests performed on a particular set of the same products. In 2015 and 2016, the SENSIT company carried out these accelerated durability tests in cooperation with the University of Defence in Brno on sets of products representing 4 production technologies. The present result of these tests shows that all the tested technologies for the production of temperature sensors ensure the reliability parameters required by the manufacturers of railway vehicles.

APPLICATION OF SENSORS, SWITCHES AND CONVERTERS

- measurement of the temperature of axle bearings
- measurement of the temperature of traction motor cooling air
- measurement of the temperature of coolers, batteries or other components with a flat surface
- secondary measurement of the temperature of electrodynamic brake resistors
- temperature sensors for the control of turnout heating
- air temperature measurement in gel battery cabinets of fast train carriages
- measurement of outdoor air temperature
- contact temperature sensors for surface temperature measurement
- seat temperature measurement
- measurement of the temperature of engine compartments, oil, diesel fuel, coolant, etc.
- temperature measurement in pipes and tanks with service and waste water
- measurement of the temperature, relative humidity, CO2 concentration, atmospheric pressure and VOC concentration in passenger carriage interiors, driver's cab and air-conditioning ducts
- electronic and bimetallic temperature switches activating at defined temperatures
- transducers converting a resistance signal to an analogue and digital output, etc.

TEMPERATURE SENSORS OUTPUTS

- resistance • 0 to 10 V • 4 to 20 mA • RS 485 • CAN protocol

CUSTOM MADE SENSORS

SENSIT s.r.o. also produces custom made sensors. Based on customer requirements, we are able to develop sensors for specific applications with a minimum quantity requirement of 1 piece and with all required railway certificates.

For more information about SENSIT s.r.o. sensors, switches and converters, please visit **www.railwayvehicles.com** or contact us directly at **randysek@sensit.cz**

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Re-Shaping the Future of Rail Connectivity

For connectivity on-the-move, nothing can rival satellite. Unconstrained by terrestrial infrastructures' limited reach and congestion, satellite delivers complementary broadband access to virtually anywhere in the world.

Today, the satellite industry is experiencing a revolution that will transform it forever. These changes will dramatically affect the reach, affordability and accessibility of "over-the-horizon", or satellite-based broadband wireless connectivity – a paradigm shift that will completely transform communications on the rails.

Let's take a closer look at these changes, and at why Phasor's break-through electronically steerable antenna (ESA) technology holds the key to unlocking this potential.

Communications satellites operate in three types of orbits: Geosynchronous Equatorial Orbits (GEO) – also known as a geostationary orbits, a sub-category of geosynchronous orbits, Medium Earth Orbits (MEO) and Low Earth Orbits (LEO). Traditionally, GEO satellites have been the mainstay of the industry and these large communications spacecraft, located over 37,500km above our heads, travel at the same speed as the Earth's rotation. Geostationary satellites travel at the same speed at the Earth's rotation and to the observer on the ground they appear to be "fixed" in one location in the sky. These satellites, though extremely capable as broadband communications relays, suffer from latency, which can affect certain types of communications such as real-time voice & video communication, due to the time-interval for a signal to reach and return from the satellite. Additionally, the reach of geostationary satellites is limited in coverage in the extreme Northern and Southern Hemispheres where the "look angle" from an antenna to the equatorial satellite is extremely low – and this impairs communications links.

Alternatively, there are other types

of satellites called "Non Geosynchronous Satellites", (NGSOs), which travel in multiple orbital planes around the Earth at dramatically closer orbits. These MEOs and LEOs were traditionally reserved for scientific, meteorological, governmental/military and narrowband communications missions. The important and notable change that is now rapidly sweeping the industry is the use of smaller satellites in the MEO and LEO orbits for "wideband" (Ku and Ka frequency) broadband communications. Due to their much closer proximity to the Earth, latency is no longer an issue, and the multiple orbital planes (other than at the equator) ensure coverage literally everywhere on Earth, including the poles.

The planned MEO and LEO constellations will consist of many – in some cases thousands – of smaller satellites that will orbit the Earth much faster than GEO satellites. This means that the ground terminals (antennas) that receive the signals must be able to track these moving communications satellites (as opposed to the apparently "fixed" satellites in a geostationary orbit). In addition, it is required that the ground terminal must track two LEOs/MEOs simultaneously – as one comes into view and transits across the sky, the second must be tracked and engaged to ensure the network remains seamlessly connected.

These new developments within the satellite industry have the potential to create huge benefits for land mobile communicators.

If GEO, MEO and LEO satellites, with all the individual and complementary benefits they bring, can be used interoperably, rail operators and communicators will be able to realise a connected experience that is unprecedented: the ability to truly connect EVERYWHERE in broadband, independently of location or which type of satellite asset (GEO/MEO/LEO) is being accessed. As most rail operators will opt for terrestrial wireless networks initially, this new and ubiquitous satellite broadband coverage will complement, and in most cases supplement 3G, 4G and 5G-based networks, allowing a seamless operating environment for all rail broadband service providers.

This powerful combination is being built and launched today, but will only work with a new breed of enabling technology – the electronically steerable antenna (ESA). The right kind of access technology – agile, reconfigurable, high-performance – unlocks the potential of the new space segment infrastructure in development. Without it, these ambitious constellations and their plethora of services and new applications they empower, literally cannot be realised. The ESA is the gateway technology that will enable these transformative communications.

Phasor Inc. was founded four years ago to solve this problem, initially focused on solutions for the rail industry. During the development process of its ESA technology, the team at Phasor focused upon the evolving nature of enterprise broadband connectivity in land mobile markets, and on satellite industry trends. Phasor is now preparing to take its ESA through beta testing, and then to bring to market a very low-profile, flat-panel solution that is future-proof, enterprise-grade and that offers unrivalled performance, scalability and reliability. The ESA is solid-state (no moving parts or motors), stands at just 2 inches high and will conform to the deck or superstructure of any vessel. This kind of advanced antenna simply does not exist anywhere else today, and it is set to disrupt the mobility and enterprise broadband communications markets.

The demand for broadband mobility is on a growth trajectory that will continue for the foreseeable future, accelerated by the advent of new and more powerful satellite communications fleets. The introduction of a truly high-performance, flat-panel antenna with the ability to track multiple satellites from a single aperture simultaneously, is the critical piece that will complete the broadband mobility jigsaw.

In the near future, Phasor will offer its unrivalled ESA technology to the passenger rail market and help define a new era of connectivity on land, at sea and in the air.

Introducing the new great British Cables Company, established 1895! Yes, we have actually been around for quite a while. In fact, we were the first successful company in Britain to design, manufacture and distribute specialist cable products throughout the UK. Whilst many will recognise us as the largest volume manufacturer of copper telecoms cables, we now also provide a vast range of cables and accessories for just about every industry sector and application.

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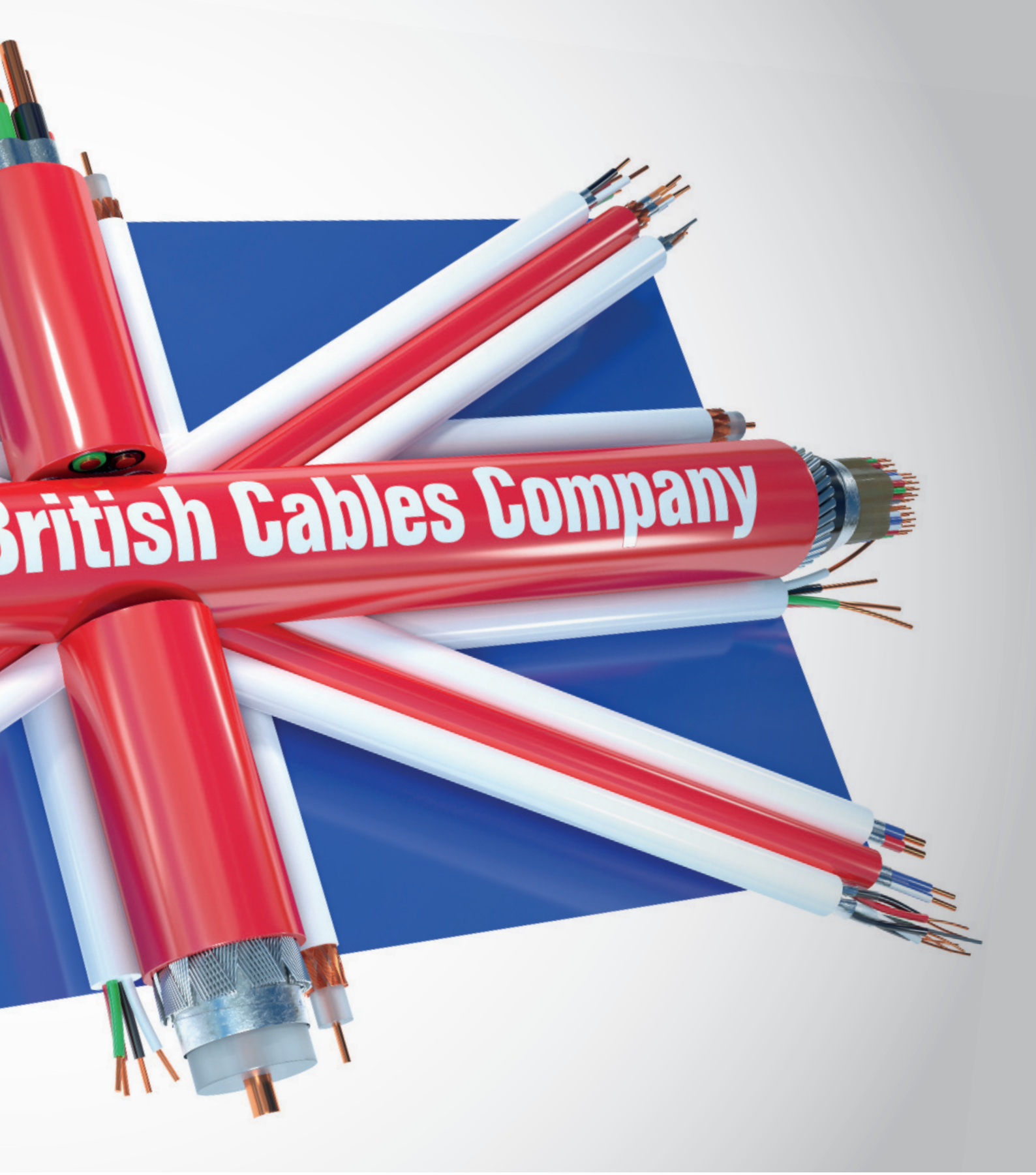

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The Grand Paris Express:

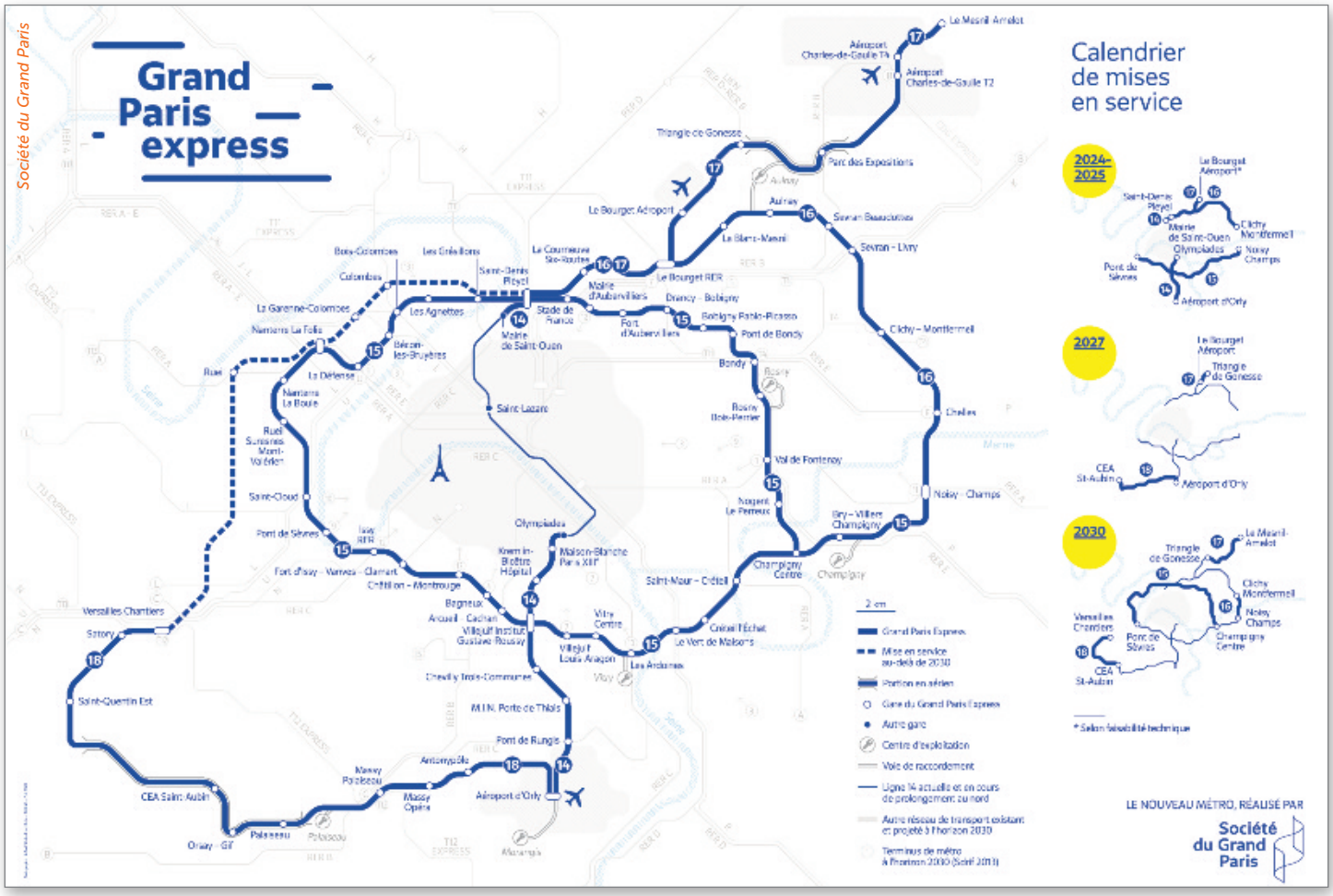
A Transport Project Serving the Residents of the Paris Region and the Capital's Development

KM5 in Bagneux: Lighting the Tunnel Boring Machine
© Société du Grand Paris / Julie Bourges

The new Grand Paris metro lines, together the Grand Paris Express, have created an infrastructure project of unprecedented magnitude: 200km of new track, of which 90 percent is under ground, with four new lines, one extension, 68 new stations, fully automated rolling stock, all for a 35 billion euro investment. It is the largest infrastructure and development project in Europe and the largest public transport project in Île-de-France since the construction of the RER.

The Grand Paris Express is the backbone of the transformation of Greater Paris. This network of lines, which will be interconnected and allow passengers to bypass unnecessary areas, will improve the lives of Parisians, delivering new mobility, reducing travel times and giving rise to new neighbourhoods. The Grand Paris Express will connect major business centres and also link up under-served areas. A real lever of economic development, when the new metro becomes operational, it will generate 100 billion euros in additional GDP over time – or four billion euros per year for 25 years. The Grand Paris Express is also a source of opportunity in terms of employment, integration and training. Every year, the Grand Paris Express will sustain 15,000 jobs. By 2030 the network will have created at least 115,000 jobs.

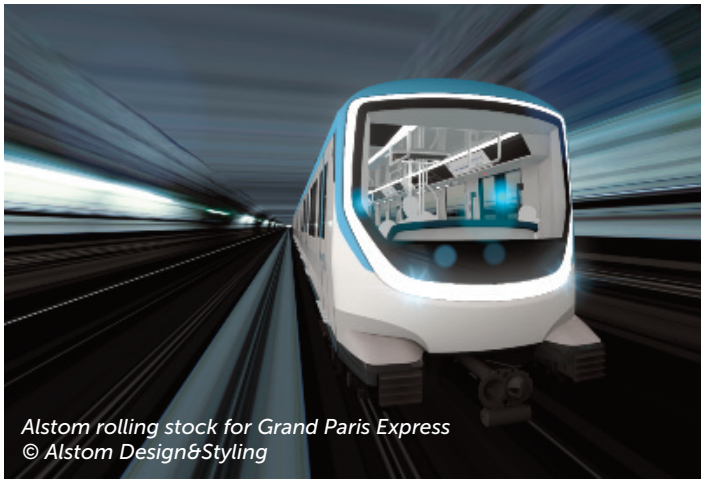
The intention behind the Grand Paris Express is not just to build an essential transport project to meet the need for travel, but also to deliver a new vision of land development. The Grand Paris Express is a mobility solution that will rebuild, redefine and intensify the city, while limiting urban sprawl.



The Grand Paris Express Is Ramping Up

Work has intensified on the entire Grand Paris Express project in recent months. It has achieved important milestones over the past year. Three tunnel-boring machines are already in operation and 65 construction sites are in place for stations and service structures. In 2019 around 15 machines will dig the tunnels for the new metro. By 2020 this number will rise to 20.

Along Line 15 Sud all the stations between Pont-de-Sèvres and Noisy-Champs are undergoing civil works.



Alstom rolling stock for Grand Paris Express
© Alstom Design&Styling

For Line 15 Ouest and Est the Société du Grand Paris will launch the procedure by which it will award works contracts under the design-build regime this year.

Work is progressing at a steady pace on Line 16. Regarding the section linking Saint-Denis Pleyel and Noisy-Champs, the first civil engineering contract was awarded to the Eiffage Génie Civil group in February 2018. In October 2018 the second civil engineering contract was awarded to the consortium composed of the Italian company Salini Impregilo and the French company NGE.

Regarding Line 17, the Société du Grand Paris awarded the first civil engineering contract for the section between the Bourget RER and the Gonesse Triangle to a group led by Demathieu Bard.

For Line 18, the Société du Grand Paris has signed a land agreement with the public planning body Paris-Saclay to allow the transfer of the necessary land and is currently finalising the tenders for the order of the rolling stock and the infrastructure works for the line.

Descent of the Cutting Wheel at Puits Robespierre
© Société du Grand Paris / Gérard Rollando

The Grand Paris Express – A Feat of Planning

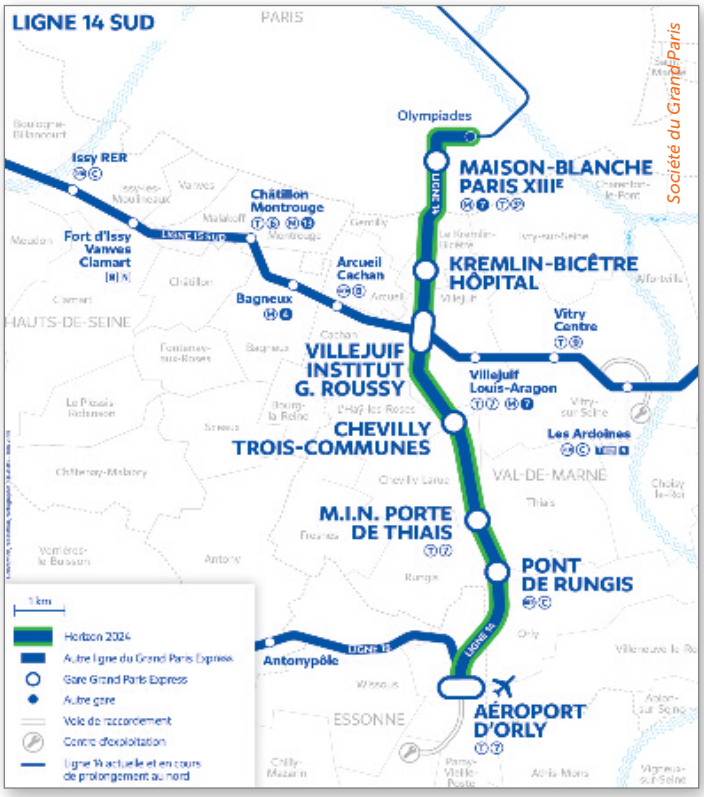
The Société du Grand Paris decided to build not just underground stations but also stations that would contribute to creating the heritage of tomorrow's city.

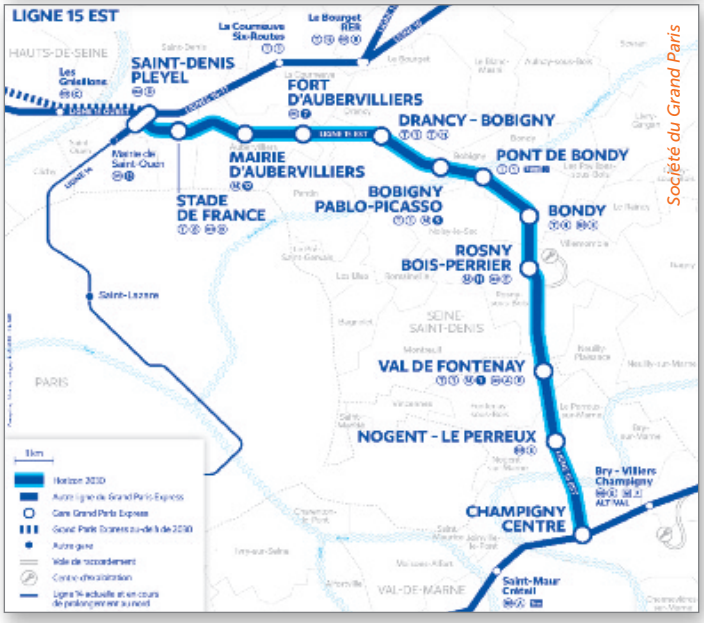
The Grand Paris Express will structure the development of the capital region. Station neighbourhoods have, for the most part, already begun their transformation to become the hubs of Greater Paris. This movement of transformation will be accompanied by the creation of innovative, high-quality public spaces, capable of offering each user optimal access and connection conditions. These public spaces will form the future squares of Greater Paris. The success of this train station / city combination depends on the Grand Paris Express.

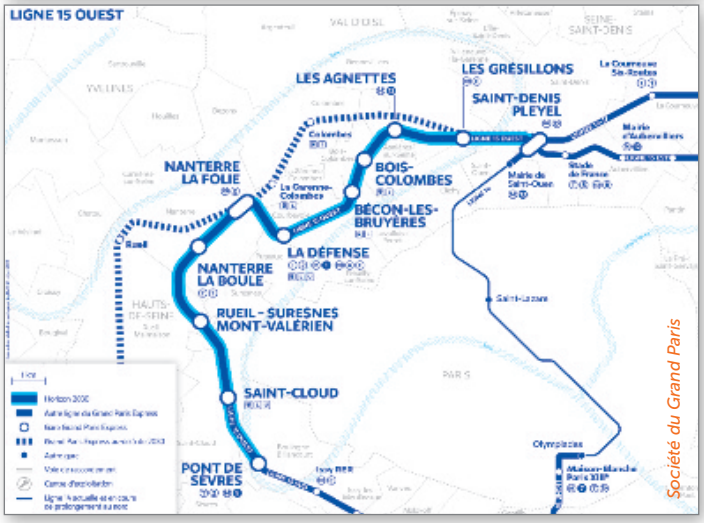
The stations of the Grand Paris Express will be both places of transit and places where life happens. The forecourt of each station will facilitate the transition from one mode of transport to another (bus, metro, tramway, bicycle, cars...). 80 percent of Grand Paris Express stations will be connected to existing modes of transport (RER, metro, tram, Transilien).

Faster and More Connected Trains

The Société du Grand Paris and Île-de-France Mobilités have awarded the contract for the study and supply of rolling stock for the Lines 15, 16 and 17 to Alstom. These fully automated metros will run at an average speed of 55–65km/h, with a top speed of 110km/h. The lines will have a train every 2 to 3 minutes. Everything is done to transform the journey into a pleasant experience, with air-conditioning, access to very high-speed wifi, USB ports, video surveillance and real-time information systems. 2 to 3 million passengers will use the new network every day.







The Commissioning Calendar:

Line 15

2025: commissioning of Noisy-Champs at Pont de Sèvres (Line 15 South).

By 2030: commissioning of lines 15 West (Pont de Sèvres to Saint-Denis Pleyel) and 15 East (Saint-Denis Pleyel to Champigny)

Line 16

2024: commissioning of Saint-Denis Pleyel in Clichy Montfermeil

2030: commissioning of Clichy-Montfermeil at Noisy -Champs

Line 17

2024: commissioning between Saint-Denis Pleyel and Le Bourget Aéroport

2027: commissioning between Le Bourget Aéroport and Triangle de Gonesse

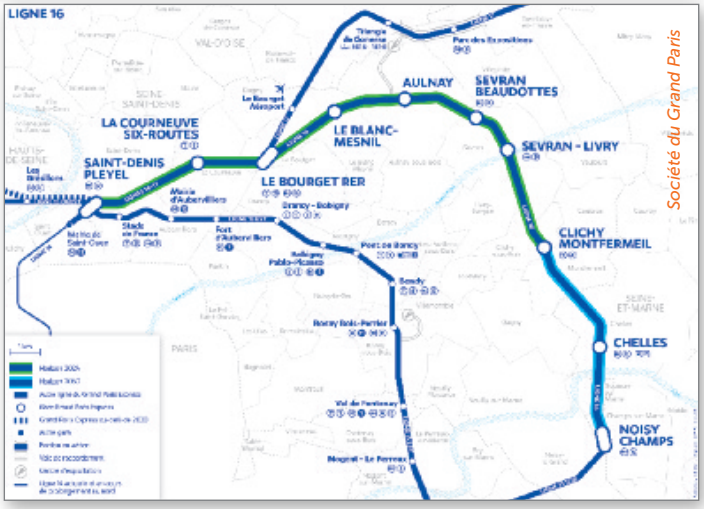
2030: commissioning between the Gonesse Triangle and the Mesnil Amelot

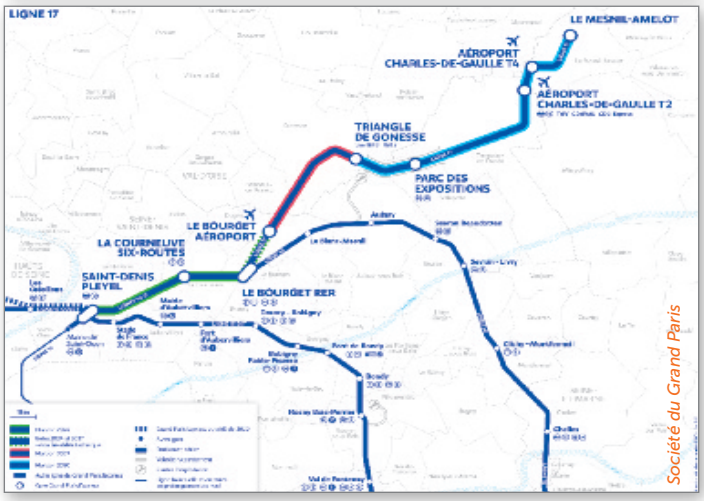
Line 18

2026: commissioning between Massy Palaiseau and CEA Saint-Aubin

2027: Commissioning between Orly Airport and Massy-Palaiseau

2030: commissioning between CEA Saint-Aubin and Versailles Chantiers





Written by: Société du Grand Paris
Translation into English: Josephine Cordero Sapién

Online monitoring for reliability and reduced total cost

SKF Multilog On-line System IMx-Rail

Under pressure to drive costs down, railway operators need reliable trains that arrive on time. Condition monitoring is one easy way to achieve both. SKF IMx-Rail is a multi-channel system designed for continuous performance monitoring in railway applications.

With the possibility of integration into current systems, IMx-Rail helps avoid unplanned stops, increases maintenance intervals and helps reduce the total cost of ownership.

Find out more at skf.com/railways

Rolling Railway Maintenance to a Digital Destination

In the rail industry time is valuable currency. SKF's latest digital innovation is proven to extend maintenance levels and keep rolling stock rolling as much as possible.

Condition-based maintenance (CBM), which involves measuring and monitoring parameters such as vibration and temperature to spot anomalies at an early stage, has been applied for a long time in many industries. The monitoring aspect is commonly known as conditioning monitoring.

Historically, the rail industry's maintenance regime is to service trains on a time or mileage basis. Though this approach has been used successfully for many years, it does not take account of whether parts actually need replacing. Inspection can only take place when trains aren't running, and maintenance actions require rolling stock to be taken out of service, or lines to be closed for extended periods.

As such, maintenance costs remain one of the biggest concerns for the industry, due to aging train fleets and the increasing need for train availability.

Adoption of CBM is steadily growing thanks to significant innovations and the availability of technology. Digitalisation is making a major difference towards how maintenance is executed and can enable the customer to extend maintenance intervals. This can have beneficial effects on, for example, train availability. The less time rolling stock spends in maintenance, the more time it can spend carrying passengers or cargo – this is important at a time when the sector is seeing increased pressures on demand. It can also help with reducing life-cycle costs and inventory management of spare parts, due to the early warnings provided by condition monitoring of any risks and possibilities of incidents.

SKF has combined CBM with its knowledge in bearings and other components and developed an entirely rail-focused version of its highly successful Multilog IMx platform. This latest innovation combines rolling stock and track condition monitoring in a single, easily customised solution.

The Next Step in Train Digitalisation

Multilog IMx-Rail is a multi-channel, on-line condition monitoring system based on new rail-approved components. It is the next step in train digitalisation, allowing operators to implement condition-based maintenance that can help achieve goals such as TCO reduction, higher availability, the avoidance of unplanned stoppages and longer maintenance intervals.

Available for OEM installation and as a retrofit solution, Multilog IMx-Rail offers advance warning of rolling stock rotating part issues on wheel bearings, gearboxes and motors, as well as data collection

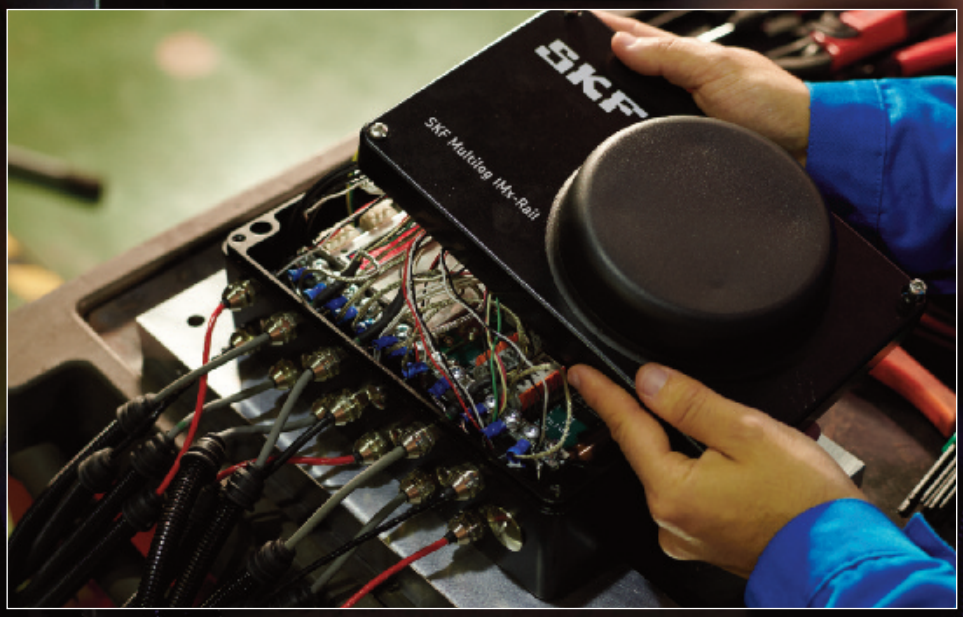
from many other components. The system can also provide a track health-map with line faults located, identified and recorded with market-leading accuracy.

The Multilog IMx-Rail system can also be integrated easily with SKF's Cloud Services for data storage, data sharing and for SKF Remote Diagnostic Services. Its versatility, combined with SKF's expertise at monitoring rotating components across many industries, enables the quick analysis and prioritisation of any planned rolling stock maintenance.

Proven on the Tracks

Multilog IMx-Rail is already demonstrating its capabilities in the field. To provide a sense of how the system typically works, on a standard commercial train, for example, the self-contained package of sensors and electronics is mounted on to one of the train's bogies, under a carriage. In everyday operation, the unit measures and records acceleration and vibration signals, it then processes this data and transmits all the information wirelessly to a back-office collection point, where reported information can trigger required actions.

Next, a dedicated software system, also provided by SKF, uses smart algorithms to analyse the sensor's data, along with information on the train's location and operating conditions. The software system, called "@ptitude Observer", identifies, locates and accurately records rail track abnormalities that might generate wear or damage to the train's wheels, cause passenger discomfort, or result in noise on particular parts of the track.



Maintenance staff can then use that information to trigger a more detailed inspection of the area of track identified.

Multilog IMx-Rail doesn't only help operators understand the condition of wheels and track. The system is also designed to identify vibrations caused by other problems on the train, such as faulty bearings. Operators around the world are already using this approach to avoid breakdowns and optimise their rolling stock maintenance schedules.

As rail traffic increases, the role of digitalisation and condition-monitoring solutions, such as Multilog IMx-Rail, will become increasingly more important in boosting rolling stock efficiency and keeping trains on track.

Aktiebolaget SKF
(publ)

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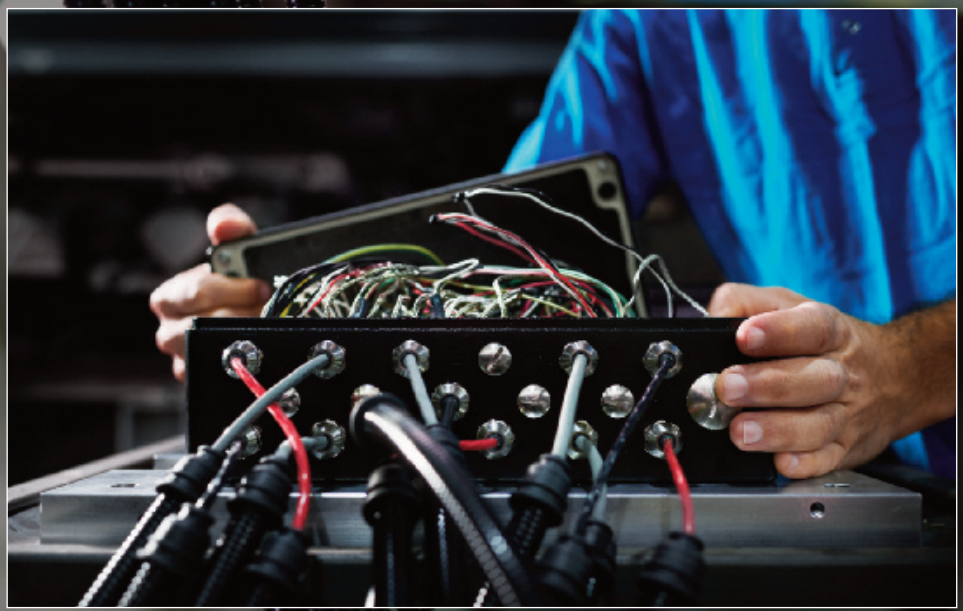
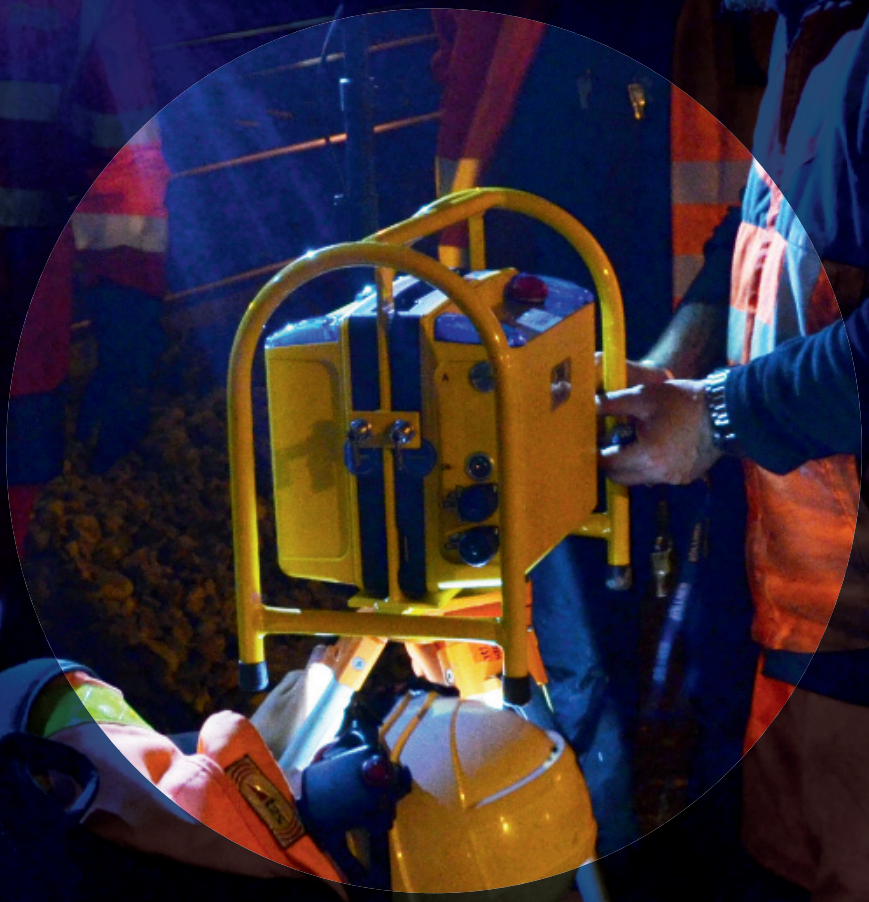


→ DISCOVER SAFETY ON TRACKS MEET THE MFW-SYSTEM!



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Track Warning Systems

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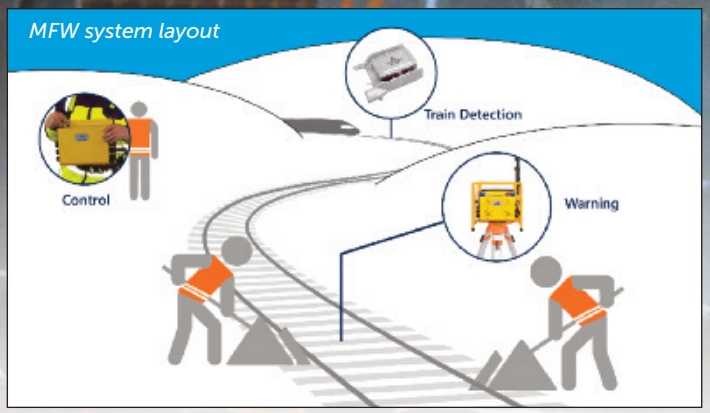
Regular maintenance of the railway track is indispensable to assure safe and punctual train operations. Often it is not possible to get possession (line blockage) for maintenance work, making safe solutions for warnings on the active or adjacent track imperative.

Mobile Radio Warning System MFW

ZÖLLNER Signal GmbH is the world's leading supplier of automatic track warning systems for track workers. Approximately 1000 MFW systems have been in use all over Europe since 2010. SNCF approved our MFW in 2013. As of 2018 qualified private companies can use the MFW system on the French rail network. The MFW is an evolution of the Autoprowa® hardwired automatic track warning system (ATWS), in use in France since 2004.

Look-out with mobile ZFS and warning devices ZPW and WGH

Operator mounting a train detector on the track



Mobile and versatile

The MFW is a small, light-weight system which allows fast set-up times for mobile, small worksites and worksites with short duration. Based on bi-directional radio technology with dedicated frequencies, the system consists of a control unit (ZRC) supervising the entire system, one or more personnel warning devices (ZPW), and one or more radio transmitter devices (ZFS) that can be used stationary with a train detector or by a look-out. For very loud sites, an acoustic warning device (WGH) can be added. It should be noted that the WGH can also work as a stand-alone horn. It is then operated remotely by a look-out. The system thereby aids efforts to improve occupational health by allowing a distance to the warning horn.

The Autoprowa® effect for noise-sensitive areas

Recent projects, particularly at Clamart train station in the Paris outskirts [that the future metro Line 15 of the Grand Paris Express project will serve, ed.], have shown that our MFW system is also suited for use in urban areas. People living next to a railroad know all too well that work performed at night generates a significant amount of noise. The disturbing noise is due not only to the construction machinery but also the shrill sound of the horns activated by the look-out. Our MFW allows an automatic sound level adjustment on each individual warning device (ZPW) so that the announcement of traffic is only heard by workers on the site, avoiding many complaints from neighbouring residents. This makes it possible to preserve the sleep of the people living near a station or a line where work is in progress! The MFW also offers the possibility to select a silent mode, keeping only the optical warning active for a traffic announcement. In emergency cases, the acoustic signal activates again automatically and thus assures optimal safety.

Flexible configuration and quick setup

The Clamart site once again showed the interest, flexibility and benefits of the MFW when the work orders changed in the course of the evening. The work area decreased from 150m to 50m and it moved so it was necessary to announce only one track instead of two. Operators changed the configuration and put the system back into service in 10 minutes. It should be noted that the operators used the system on a real worksite for the first time just one month after their training.

The ZÖLLNER MFW can be used with inductive train detectors, especially suited for high-speed lines, or electromechanical detectors for conventional lines.

First MFW worksite in Paris using reduced sound level and automatic train detection:

SIL4: the highest safety level

The MFW is SIL4-certified making it more reliable and more suitable than the conventional warning with a look-out. This becomes evident when carrying out risk analyses, as required by the EN 16704 standard for protection and safety during work on the track.

Moreover the MFW is usable under any weather and all visibility conditions including fog when it is not normally possible to deploy look-out in France and it is necessary to increase the number of operators due to the reduced visibility instead.

Hardwired Automatic Track Warning System (ATWS)

The ZÖLLNER Hardwired Automatic Track Warning System was approved in France in 2004 and is currently deployed by SNCF, SFERIS and Eurotunnel. Some people may know it as the "Autoprowa".

The ATWS has been designed to meet the requirements for a more reliable, functional and more cost-efficient system than a chain of look-out.

The modular design enables the Autoprowa® hardwired system to provide warnings for work sites from 50m to 1050m. Regardless of the worksite length, only one person is needed to operate the system because it is fully automatic and manages warnings in accordance with the information from the strike-in and strike-out detectors. As of today it is the most suitable system for many types of fixed work sites, as well for the repair of structures and large-scale track renewals.

The sole approved system for complex worksites

The Autoprowa® hardwired system is designed to handle complex track layouts and longer worksites where several 1000m systems are installed consecutively, e.g. "GOPs & Suite Rapide". This is the only warning system approved in France that is fully automatic and that can cover lengths beyond 200m.

Close to you

Our company develops and manufactures at our main facility in Kiel, northern Germany. In Europe we have subsidiaries in France and in the UK in order to provide after-sales services and training in each country and to be closer to local customers.

This article is also available in French. Please click here.

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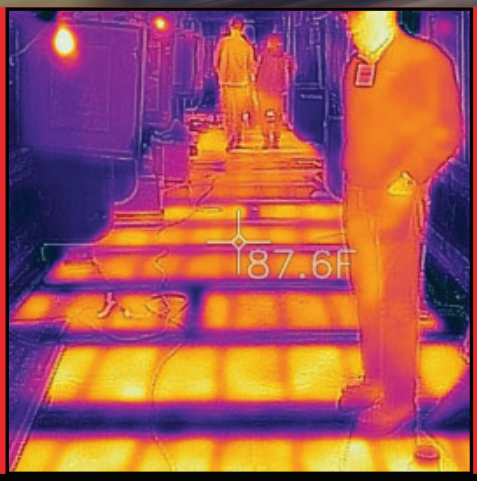

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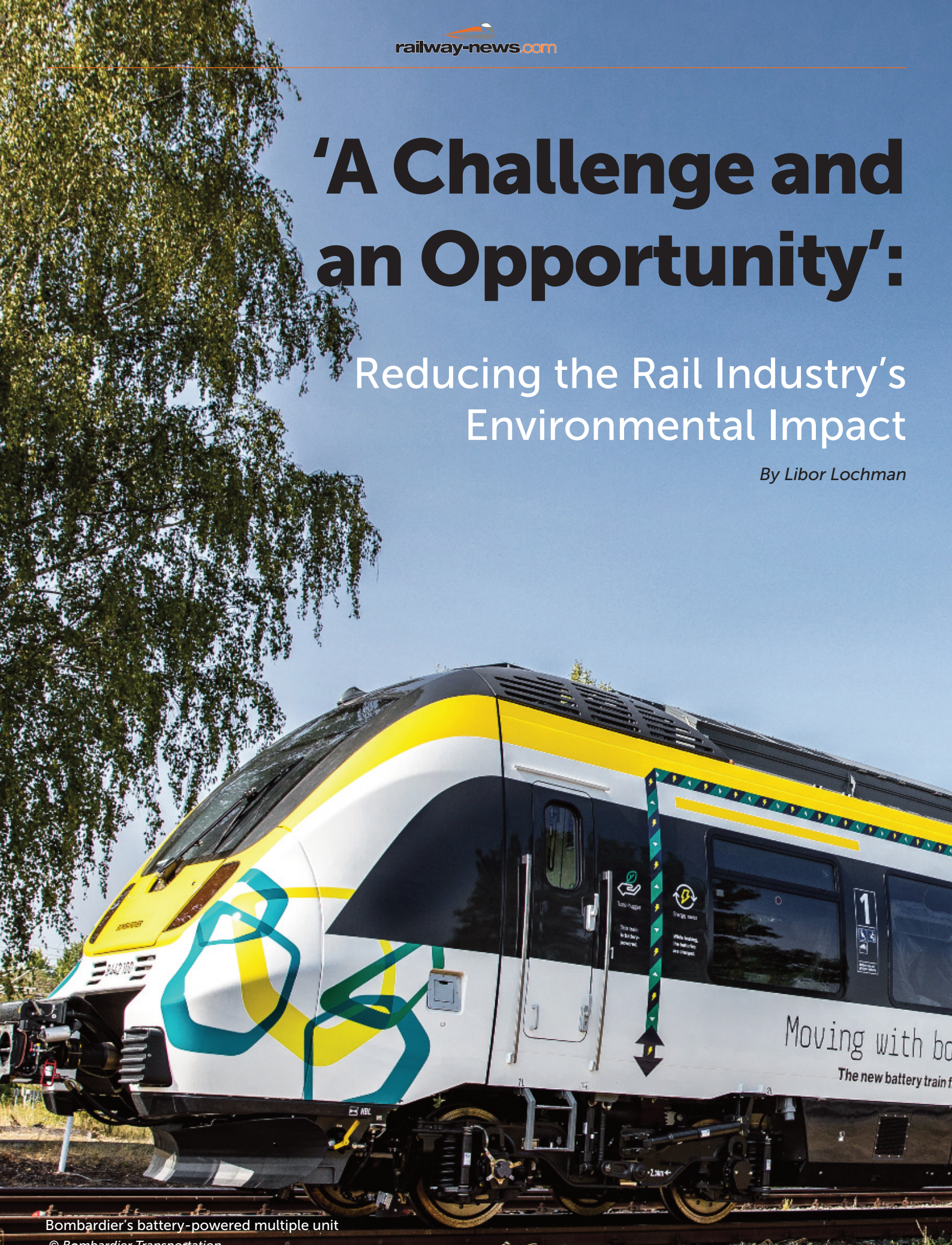
‘A Challenge and an Opportunity’:

Reducing the Rail Industry’s Environmental Impact

By Libor Lochman



Bombardier’s battery-powered multiple unit

© Bombardier Transportation

Anyone who followed the news from Davos 2019 knows that controlling climate change was a central theme on the World Economic Forum's agenda. The panel discussions featuring Al Gore, Sir David Attenborough, Jacinda Ardern and the UK's Prince William amongst many others illustrates that influencers are aware they need to discuss the matter. However, debate is one thing. Action is quite another. The former without the latter means some are treating this vital matter like a Monty Python committee meeting. The headline in the Independent 'Davos 2019: Record number of private jets set to fly into conference addressing climate change' highlights the problem and stands in stark contrast to the efforts made to travel to the Paris Climate Conference (COP21) by train. And although rail is by far the more environmentally friendly mode of transport, as Railway-News is keen to demonstrate, the industry is proactively working towards further improvement. In this article **Libor Lochman, Executive Director of The Community of European Railway and Infrastructure Companies (CER) and Ethem Pekin, Senior Environmental Economist – Sustainability Affairs for the organisation**, tell Railway-News how the rail industry is acting on the European Commission's priorities for climate neutrality:

There is no doubt that 2018 was a pivotal year for climate. In October, the Intergovernmental Panel on Climate Change (IPCC) made it clear that allowing global warming to reach 1.5°C above pre-industrial levels would have grave consequences. This was followed in December by the climate talks at the 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP24) in Katowice – the most important round of negotiations since the Paris Agreement was reached three years ago. COP24 concluded with the adoption of a "rulebook" for putting the 2015 Paris Agreement into practice. This translates into better guidance on how governments will measure, report on and verify their emission-cutting efforts.

It must be noted that the EU has played an instrumental role in this climate diplomacy, pushing for even higher ambition in making the Paris Agreement operational. Regarding the EU's own obligation under the Paris Agreement to reduce greenhouse gas (GHG) emissions by at least 40% by 2030 compared to 1990, policy makers were able to adopt various key pieces of legislation in 2018. Furthermore, just before COP24, the European Commission adopted a strategic vision for a climate-neutral Europe by 2050.

Transport, which heavily relies on liquid fossil fuels, is the main obstacle in delivering the EU's climate objectives. Decarbonisation of the transport sector remains both a challenge and an opportunity. In this context the 2050 strategic vision acknowledges rail as an important mode for low-emission mobility. The rail sector is indeed the only mode reducing its emissions despite increasing freight and passenger traffic. The sector is in line with the Paris climate goals and thanks to energy-efficient,

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Alstom's hydrogen-powered Coradia iLint
© Alstom

zero-carbon railways there can be more transport activity without compromising on the total transport GHG emissions in Europe. This is why the EU strategy underscores the need for further developing the rail network, low-emission mobility solutions, digitalisation, alternative fuels and smart infrastructure.

There is no single solution for the future of low-emission mobility. Detailed EU policy documents such as the 2011 White Paper on Transport and the 2016 European Strategy for Low-Emission Mobility have already shown that an integrated system approach is required to put the transport sector on a sustainable path. In its recent 2050 strategy, the European Commission shortlists the following elements to deliver this goal:

- ***action on overall vehicle efficiency***
- ***promoting low and zero-emission vehicles and infrastructure and the long-term switch to alternative and net-zero carbon fuels for transport***
- ***a fundamental increase in the efficiency of the transport system – by making the most of digital technologies, smart pricing and further encouraging multimodal integration and shifts towards more sustainable transport modes***

Welcoming the EU strategy, the Community of European Railway and Infrastructure Companies (CER), the Association of the European Rail Infrastructure Managers (EIM) and the Association of the European Rail Supply Industry (UNIFE) published the position paper "EU Strategy for long-term greenhouse gas emissions reductions - the crucial role of rail" on 29 November. The

sector urges policy makers to be bold in setting and monitoring climate targets. In order to address the existing emissions gap in transport with a view to reaching zero emissions by mid-century, binding intermediary targets for 2030 and 2040 are needed. In addition, if rail is recognised as an important mode for low-emission mobility, it should be supported in its role and certain inequalities with other transport modes should be redressed.

Regarding green infrastructure, further electrification of the rail network must continue, whenever economically justified. The new EU budget, therefore, has a crucial role to play as it will enable taking steps to complete the EU Trans-European Transport Network, including electrification, by mid-century. As a complementary option, support should be given to the marketability of alternative clean technologies (such as batteries, biofuels and hydrogen).

Europe has been sleepwalking when it comes to the internalisation of external costs. With regard to climate targets, a strong carbon price is needed to drive large-scale climate action in the European economy. Rail, as a major electric transport mode (80% of the total traffic is running on electricity) is currently the only mode paying into the EU Emissions Trading System (ETS) and being penalised by environment-related charges unlike more carbon-intensive modes (aviation continues to receive ETS allowances for free and road transport is not under the scope of the ETS).

In 2019, the European Commission will update the handbook on external costs and present a full cost coverage study. Internalisation of external costs, starting with effective carbon pricing for all modes is therefore urgently needed. Until this is achieved Member States should compensate railways by allocating an equivalent share of ETS auction revenues. Rail projects should also benefit from the newly established Innovation and Modernisation Fund under the ETS Directive.

As recently agreed by environment and transport ministers under the Graz Declaration, railways as a backbone of sustainable mobility, both for urban/sub-urban and medium/long-distance transport, should be promoted and effectively interconnected with other low-carbon modes. This reconfirms the Commission findings that a significant portion of emission reductions could be delivered through modal shift to low-emission transport modes. Energy-efficient, zero-carbon railways are ready to support the transition to green mobility in Europe.

The climate remains high on the rail agenda in 2019. On 29 January CER together with Dutch Railways NS co-organised the event "COP24: the takeaways for Europe – How rail can help deliver on urgent climate goals". It informed attendees about the European Commission's strategic vision for a climate-neutral Europe by 2050 and was a good opportunity to keep the discussion moving forward on how rail can be part of the climate solution.

Additional writing by Zoe Cunningham


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- and improved safety.

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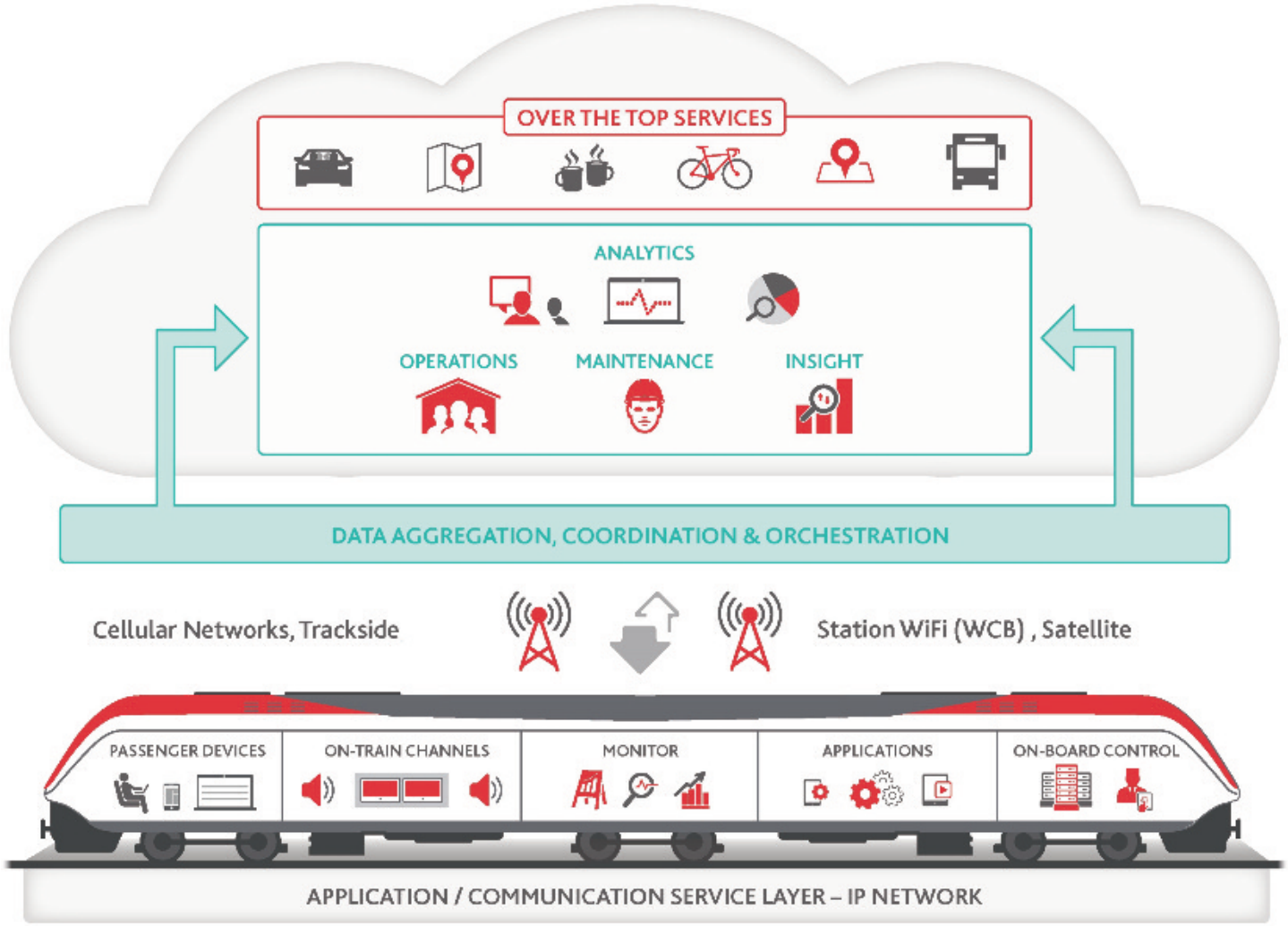
Nomad Digital – Smart Technology

Nomad Digital is the world's leading provider of passenger and fleet-management digital solutions to the rail industry.

Nomad Digital is the world's leading provider of passenger and fleet-management digital solutions to the rail industry. We offer a broad solutions portfolio to both train operators and train builders that facilitates a significantly enhanced passenger experience. The integration of Nomad's products and services into the on-train environment improves levels of passenger satisfaction and train connectivity, provides journey information and entertainment facilities and increases the in-service time and operational efficiency of the fleet.



The Vision

'To be a world leader in connected trains, renowned for continuous innovation of technology and provision of quality solutions.'

Reliable connectivity has become an 'expected norm'. When people are away from their home or office, being constantly connected is simply expected. Digital technology is all around us covering all aspects of our everyday lives and the perception is: 'why should it stop when we step on to a train?' Nomad Digital uses cutting-edge technology and equipment to achieve this 'expected norm'.

The Intelligent Train and the 'Internet of Things' (IoT)

Nomad is the pioneer of the Intelligent Train – a shared and secure network infrastructure to which all authorised on-board systems and passenger devices may connect and interact. The Internet of Things (IoT) is the driving force behind the Nomad digital platform, allowing on-board devices to communicate with each other, and with the outside world, while maintaining a full separation between passenger-facing applications and those systems responsible for the safe operation of the train. Through the adoption of industry standards, augmented with added-value Nomad interfaces and features, customers can be assured of a functionally-rich, future-proof platform on which to deploy new applications and services, and to collect and exchange data, allowing everyone to be more connected than ever before.

Enhancing the Passenger Experience

Nomad's ground-breaking vision from 2007 remains relevant today. Now, the opportunity is not just to connect the passengers, but also train operators, maintainers and on-board staff.

Connecting to a wider base of stakeholders plays a valuable role in enriching the passenger experience, by responding to market needs and solving connectivity challenges. Passengers are crucial to the train operating companies (TOCs) – yet train guards, drivers, conductors, caterers, and maintainers, all serve to enhance the passenger experience too. Bringing together passenger connectivity, information and entertainment will transform a TOCs ability to improve its passengers' experience. We offer solutions which provide TOCs with both timely and historic insight into connectivity usage and fleet performance. This intelligent data helps them to monitor, respond and report on fleet operational issues more proactively.

The future for Infotainment Solutions

Nomad's on-board infotainment solutions have the capacity to greatly enhance the passenger experience by integrating real-time journey information and media entertainment together, on a single platform, for a new experience in passenger information delivery. These innovative real-time solutions are accessible via a range of different devices and vehicle displays.

Intelligent Fleet Management

Providing rail operators with a real-time end-to-end solution – which integrates numerous on-board systems and components – is an ever-increasing priority as operators look for operational savings. Nomad not only provides remote connectivity, it also brings the know-how and tools to extract and understand critical operational data. This enables operators to perform real-time analysis on-board, automatically issue alerts of impending equipment failures and feed the relevant information in real-time to the operations and maintenance departments. Using Nomad's powerful on-shore tool, historical diagnostic data is available for analysis at any time to support improved decision-making. Intelligent Fleet Management is delivered by Nomad Tech, an innovative collaboration with EMEF, the Portuguese Railways company for rolling stock maintenance. To find out more about Nomad Tech visit nomadtech.pt

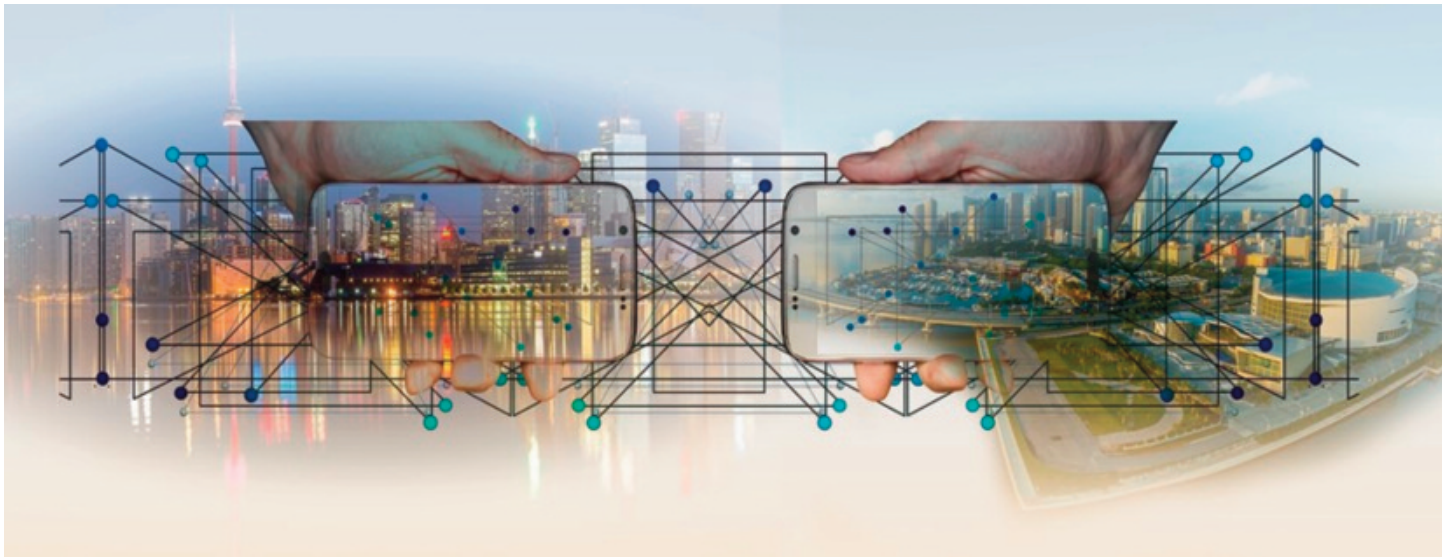
A Global Player

Nomad currently serves global customers in more than 40 countries, including train builders such as Alstom, Bombardier and Hitachi, and leading train operating companies, such as ÖBB, SNCF, DSB, Amtrak, Via Rail, Eurostar, GWR, NS, NSB, Translink, Queensland Rail and CrossCountry. Nomad's technology is used by over 2 billion passengers annually, with solutions on more than 100 fleets, across 20,000+ vehicles, utilising 37,000+ passenger information screens, carrying 15 million+ WiFi monthly sessions.

What's Next?

Nomad's key themes for 2019 are advise, connect, engage, intercorporate, insight and protect.

IoT is constantly reminding the rail technology industry to push the boundaries of what's possible. The capabilities of on-train connectivity are endless, and with the way things are going, Nomad is incredibly excited to see what the future holds.



Ticket to Ride:

Melbourne Airport Rail Link Takes Off after Decades of Debate

By Danny Elia

In recent months Railway-News has published numerous features and commentaries on major infrastructure projects in the rail industry around the world. Governments and contractors are not only developing new solutions, but also frequently returning to longstanding ideas that were proposed, admired and rejected several times because of costs, disruption and disinterest. The current enthusiasm for rail reflects the escalating necessity for interconnected, intermodal public transport networks that respond to the problem of increasing congestion in rising populations. Travel to an airport, for example, can be a very tricky and stressful stage of a journey. The common sense solution for this challenge is the construction of airport links that connect terminals to suburban and regional rail networks, allowing many passengers to leave their car at home and start sitting back even earlier in their journey. In this article Danny Elia, Executive Director, Global Asset Management, IFM Infrastructure, tells Railway-News how a link constructed by AirRail Melbourne will improve the state of Victoria's connections with other destinations in Australia, and around the world.

Danny Elia: When the site for Melbourne's international airport was selected in 1959, a passenger rail service was immediately proposed for the planned new facility.

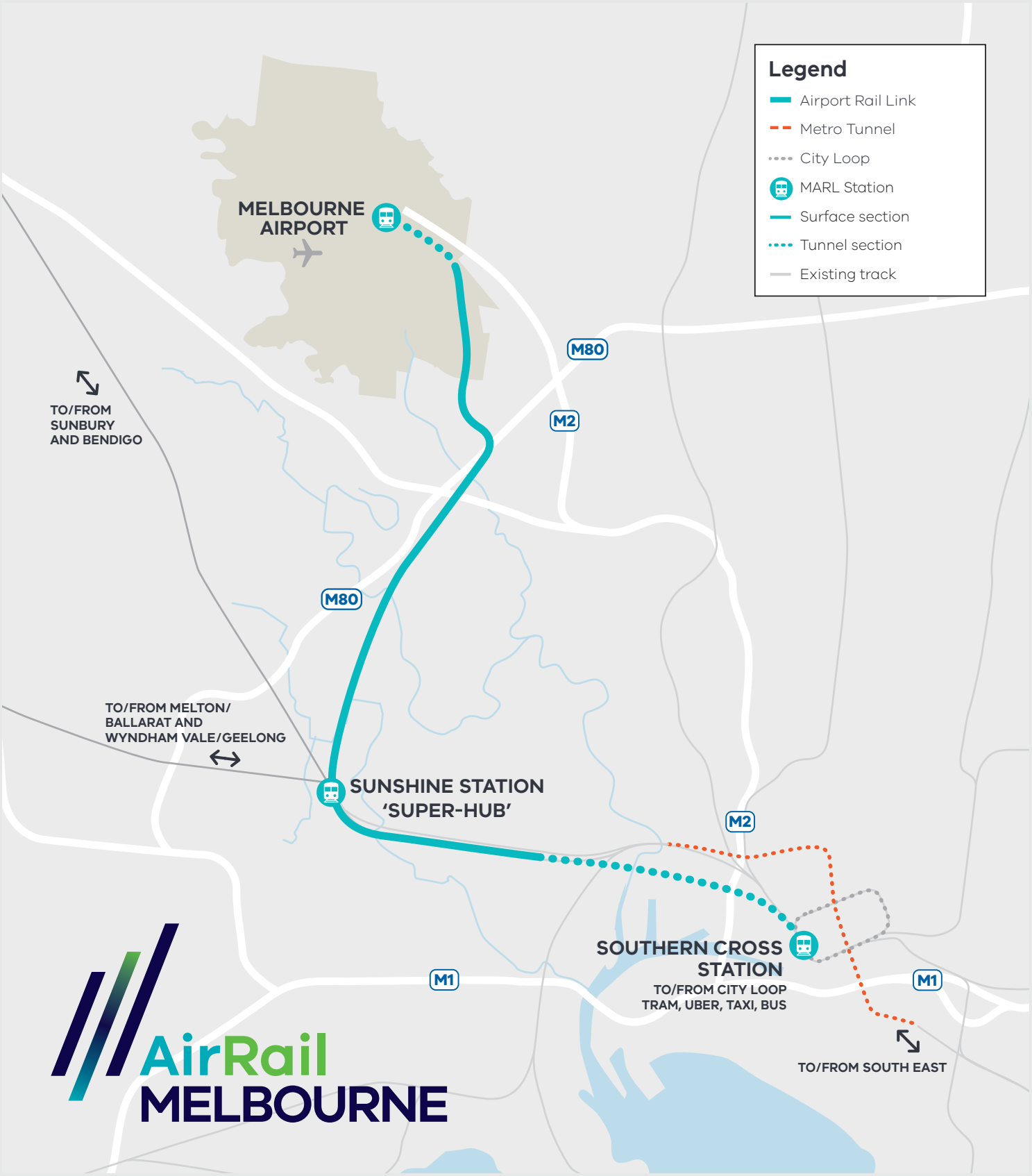
It was debated, discussed and almost legislated by the Victorian State Government but never built – a pattern that was repeated for almost the next 60 years.

But with Melbourne now Australia's fastest-growing city and airport passenger numbers expected to exceed 67 million by 2038, governments and a major private sector consortium have taken decisive action to deliver the long-overdue link.

The Victorian and Australian governments last year committed a combined 10 billion Australian dollars to the project and a consortium underwritten by Australia's major superannuation funds offered a further 5 billion dollars and a detailed blueprint for the link.

After decades of talk, Melbourne is finally set to secure a rail link that was first proposed before The Beatles were formed.

The 15 billion dollar link proposed by the AirRail Melbourne consortium will connect the entire Victorian rail network with Melbourne Airport while also complementing major new suburban train developments in the city.


Legend
Airport Rail Link
Metro Tunnel
City Loop
MARL Station
Surface section
Tunnel section
Existing track
MELBOURNE AIRPORT
TO/FROM SUNBURY AND BENDIGO
M80
M2
M80
TO/FROM MELTON/ BALLARAT AND WYNDHAM VALE/GEELONG
SUNSHINE STATION 'SUPER-HUB'
M2
SOUTHERN CROSS STATION
TO/FROM CITY LOOP TRAM, UBER, TAXI, BUS
M1
M1
TO/FROM SOUTH EAST
AirRail MELBOURNE

Trains will operate around the clock and take just 20 minutes to cover the journey between the airport and the city. Trains will depart every 10 minutes and cost no more than 20 dollars for a one-way fare – significantly less than a taxi and the same as an existing airport bus service.
The AirRail Melbourne proposal includes 27 kilometres of new track and twin rail tunnels between western Melbourne and the CBD. These tunnels will be available for regional rail services to Melbourne, freeing up above-ground tracks for suburban trains. This additional rail capacity will allow for more suburban services, reduce road congestion in Melbourne's fast-growing western suburbs and create new growth potential for Victoria's bigger regional cities.

The 5 billion commitment from the superannuation funds will also create budgetary headroom for state government to extend suburban rail services to Melbourne's western suburbs or develop high-speed rail to the booming regional cities of Geelong and Ballarat.

The twin tunnel plan will also cut travel times of current regional train services by up to 10 minutes. The AirRail Melbourne link will run through a super hub at Sunshine in Melbourne's west, already a transit point for Victoria's regional trains. Airline passengers from regional Victoria will have a shorter and faster public transport journey to the airport for the first time.

This single stop route between the airport and the city will ensure travel times are kept at 20 minutes, which extensive market research shows is vital to the attractiveness of the link for prospective passengers.

Based on that customer feedback, AirRail Melbourne has developed the over-arching philosophy of fast, frequent and affordable.

Melbourne Airport will develop a new underground station at the airport to accommodate the trains. This station will provide direct access to the terminals, ensuring passengers enjoy an easy and effortless start to their journey.

This station will also be future-proofed to accommodate potential connections to the much-discussed Suburban Rail Loop and high-speed rail services between Melbourne and Sydney.

Southern Cross Station will also be redeveloped to accommodate the airport link with seamless intermodal transport connections and a world-class arrivals and departure zone.

The AirRail Melbourne consortium is uniquely placed to deliver the airport rail link. The group comprises:

- **Melbourne Airport**
- **IFM Investors – the investment company for Australia's multi trillion-dollar superannuation funds**
- **Metro Trains Australia (MTA) – which runs Melbourne's suburban rail network and is a subsidiary of the global rail operator MTR Corporation (which operates in Hong Kong, the UK, Sweden, China and Sydney)**
- **Southern Cross Station – Melbourne's largest railway hub accommodating both suburban and regional trains and buses**

With the operators of both Melbourne Airport and Southern Cross Station working together, combined with the expertise of Metro Trains Australia in delivering world-class rail services, this consortium will be able accelerate the delivery of this city-shaping project for the benefit of all Victorians and visitors to the state.

The consortium is planning to commence work on the link next year, two years earlier than currently planned.

The early start to works will also deliver meaningful travel time benefits to regional commuters who travel on rail lines that are due to hit capacity in five years, and boost capacity for additional metropolitan services in Melbourne's fastest-growing suburbs.

By teaming up with the airport and Southern Cross Station and a deeply experienced train operator in MTA, AirRail Melbourne will be able to deliver a transformational and customer-focussed solution for the state of Victoria – all at a significant cost saving.

Like other world-class airport rail links, AirRail Melbourne will operate customer-oriented trains to accommodate passengers and luggage.

The AirRail Melbourne proposal is currently being considered by the Victorian Government. AirRail Melbourne is looking forward to working with the state and the federal governments to deliver the rail link that Melbourne and Victoria have been waiting for.

Additional writing by Zoe Cunningham

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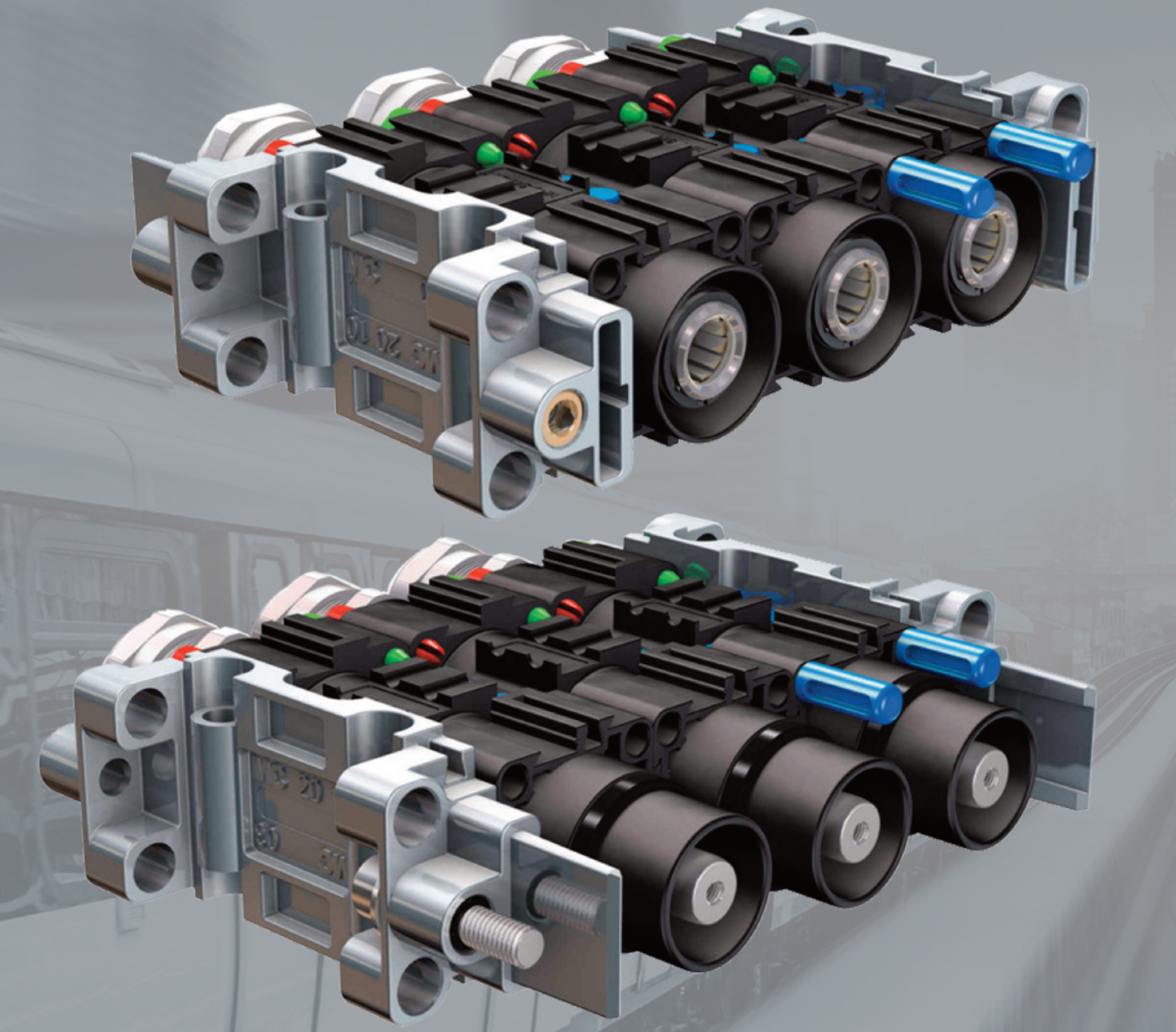

Stäubli Electrical Connectors has long been a leading supplier of advanced connection equipment to the rail industry, and its commitment to quality has been recognised with its certification to the new rail industry standard ISO/TS 22163.

Based on ISO 9001, the standard replaces IRIS (International Railway Industry Standard) and defines rules for project management, special process control, risk analysis and knowledge management within the rail sector.

Its aim is to ensure the safety and reliability of products used in the industry by defining a high level of quality throughout the supply chain. Adopting a process-oriented approach, it includes key performance indicators such as customer satisfaction and adherence to delivery dates.

Among the Stäubli products serving the rail industry is the CT-HE range of modular CombiTac connectors. Designed for connecting battery packs used on rolling stock and other rail applications, they can be configured with or without signal contacts.

A typical configuration has two 12mm diameter power contacts and twelve 1.6mm signal contacts for monitoring battery parameters such as temperature. Various sizes of power contacts can accept a wide range of cable cross-sections, and a make first / break last (MFBL) pilot contact can also be included.

The panel mount connectors are ideal for use with rackable, slide-in battery packs where blind connection is necessary. This is helped by alignment tolerances of 3° and +/- 1mm through standard CombiTac guiding end pieces.

Another modular connector designed for rail applications is the MPC. Rated at 3600V and up to 700A, it can be used for connecting transformers, traction motors, inverters and batteries, as well as for inter-carriage power links.

Up to 15 single pole power contacts can be housed in the connector, with up to five joined side by side in up to three layers. Linear versions can be used to produce flat connectors suitable for under-floor mounting.

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Made entirely of recycled PET bottles, ArmaForm is the benchmark for a sustainable, 100% recyclable alternative to legacy foam core materials.
Thanks to its unique combination of saving potential, environmental benefits and its excellent mechanical and FST properties, it is ideal for usage in railway composite structures.

// Very low smoke & toxicity levels

// EN 45545-2 compatibility
HL2 foam alone
HL3 with skins

// Excellent thermal insulation properties

// Optimum long-term stability

info.armaform@armacell.com
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ArmaForm®

Structural PET Foam Core Perfectly Fulfils Rail Industry Needs

ArmaForm structural PET-based foam core for railway composite sandwich applications

Today's train operators and manufacturers are challenged by the need for even lighter, more energy-efficient and environmentally friendly trains without compromising safety and durability. Composite sandwich constructions are increasingly used in the railway industry owing to their combination of light weight, high mechanical strength and long service life.

In 2006, Armacell launched a completely new foam core material in the composite industry, a PET-based (polyethylene terephthalate) foam core, called ArmaForm®. After its successful introduction into wind turbine composite applications, ArmaForm is used today in more than 85,000 rotor blades worldwide. And PET foam core is steadily finding a growing market in the railway industry too. With ArmaForm we offer a structural foam core combining high strength with low weight, excellent fatigue and durability, superior temperature stability and excellent compatibility with all common resins and manufacturing methods. Beyond the mechanical properties of sandwich structures used in railway applications, the fire smoke and toxicity (FST) performance is a top priority in public transport, even more when trains operate underground or in tunnels. With the introduction of the new European standard EN 45545-2, the requirements for FST performance in core materials have become even more demanding.

ArmaForm tailored to EN 45545-2 requirements

One of the big advantages of ArmaForm is the very low smoke

ArmaForm MultiCore combines different densities in one foam core. A high-density top layer for better local load and impact resistance. A low-density core saves weight while maintaining sandwich stiffness.

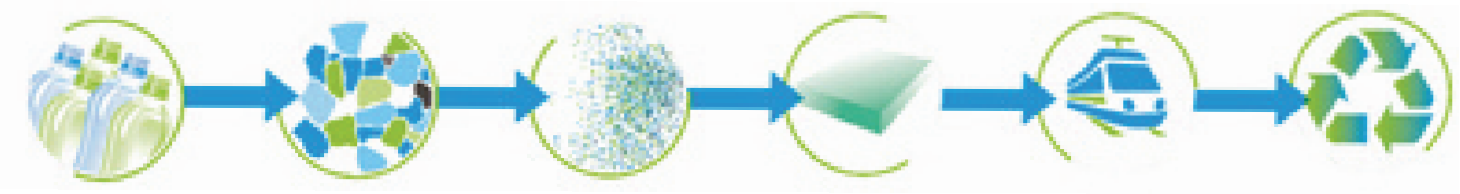
and toxicity levels achieved when subjected to fire. Armacell offers two grades, the non-self-extinguishing standard grade PET GR and the fire-retarded, self-extinguishable PET GFR grade. Experience in the industry has shown that fire-retarded core material grades are not necessarily needed for trains classified under EN 45545-2. The core material contributes mostly to the smoke and toxicity levels, slightly to heat release, but almost not at all to flame spread, while the skins handle the flame response. Official testing has shown that ArmaForm cored sandwich structures, in combination with appropriate laminates, achieve the highest classification, HL3 – which qualifies the material for use in all types of trains including metro, sleeper and couchette cars. Even in itself (without laminates) ArmaForm pass the EN 45545-2 requirements, e.g. HL2 for R10. Although the standard is not intended to be applied to the core material only, it clearly shows the potential of using ArmaForm in railway applications that need to pass even the most stringent hazard requirements. That would be impossible to duplicate with traditional core materials such as PVC core.

Armacell is offering a 'multicore' sandwich solution

ArmaForm MultiCore, part of Armacell's PET foam core product range, replies to the railway market's demand for a multiple core design, combining different densities in one foam core to improve impact and point load resistance, while keeping the weight to a minimum.

A further key requirement of exterior and interior rail sandwich applications is its impact resistance. Important factors contributing to optimising the impact performance and resilience of the sandwich structure are the core materials' compression strength, ductility and adhesion to the skins. With ArmaForm all these requirements are perfectly met; comparative testing shows that a PET-cored sandwich structure can outperform traditional concepts like honeycomb as well as balsa-cored structures.

The basic property of ArmaForm Core, being thermoplastic, enables novel ways of processing the core. It is known that by using a layered core material with different densities, properties can be improved when it comes to



ArmaForm made from 100% recycled PET

impact and point load resistance for example. However, the extra cost and weight of bonding the core sheets together with an adhesive often offset any advantages gained. With the thermoplastic welding process already in use for PET core, you can economically and safely make "bonding" without the grooves/perforations and adhesive normally required, while achieving a uniformly well controlled bond line every time. Recycling also remains easy as no other material is mixed into the ArmaForm MultiCore material.

In comparing the properties of an ArmaForm with a uniform density of 115 kg/m3, with a multicore solution of densities 200 kg/m3 for the top layer and 70 kg/m3 for the bottom layer, the multicore solution is 13% lighter, while having double the energy absorption for an impact load and a 30% increase in screw retention. This combination of lowered weight and increased impact resistance is ideal for a number of train applications, e.g. floor and nose cone. Different variations of densities will have different advantages, so that ArmaForm MultiCore can be tailored to the different needs of various train composite applications.

ArmaForm – the 'greenest' among foam cores for rail sandwich applications

Another high priority for the rail industry is the environmental aspect of trains. Today, designing and manufacturing eco-friendly trains also implies consideration of how the processed materials are manufactured. Armacell is the inventor and owner of the patented process to manufacture PET foam cores made from 100% post-consumer PET materials (recycled beverage bottles), called r-PET technology. A life-cycle analysis has shown that ArmaForm outperforms any other foam cores in terms of environmental benefits. Compared to standard (virgin) PET foam cores, for example, its recycled raw material base reduces CO2 emissions by 33% during the foaming process. ArmaForm enables Armacell and its customers to present a real 'green' and cost-effective alternative to other PET and traditional foam cores currently used in railway applications.

ArmaForm is the first fire-retarded PET foam made from 100% recycled PET

Armacell's patented technology to produce PET foam from 100% post-consumer (recycled) PET materials also started to be applied to the fire-retarded, self-extinguishable grade, called PET GFR. It is superseding the previous PET FR family made from virgin PET resin. ArmaForm GFR grade is now commercially available in a density of 70 kg/m3 with classification M1/F1 according to AFNOR NF F 16-101. The ideal combination of superior FST properties, mechanical properties, cost-effectiveness and environmental sensitivity makes ArmaForm GFR grade the material of choice for railway sandwich applications such as component floor panels, nose cones, interior ceilings and partition walls, doors and much more.

armacell®

MAKING A DIFFERENCE AROUND THE WORLD

The Dyson Airblade Wash+Dry hand dryer

Wash and dry hands at the sink. Up to 39% quieter than its predecessor.[i]

In 1907, paper towels were introduced to washrooms. The electric hand dryer made its first appearance in 1948. But both can be expensive, unhygienic and harmful to the environment. In 2006 Dyson engineers put a century of poor-performing hand-drying methods to rest, with the invention of its Airblade™ technology.

But even with an efficient hand dryer, water dripping on the washroom floor can be a concern – as users transition from the sink to the hand drying area. And excessive sound from the washroom can also be an issue.

The solution is the new Dyson Airblade Wash+Dry hand dryer. It combines in a single touchless unit a tap and a hand dryer that dries hands in 14 seconds with HEPA-filtered air. The multi-functional design helps to save space in the washroom and reduces the problem of water dripping on the floor as users move from a handwashing area to a separate hand-drying station.

Benefits for Businesses
The new Dyson Airblade Wash+Dry hand dryer costs £34 a year to run. Dyson Airblade™ hand dryers cost up to 78% less to run than other hand dryers, and up to 98% less than paper towels. And just 3.6g of CO2 is emitted per dry, with Dyson Airblade™ hand dryers, producing up to 79% less CO2 than paper towels and some other hand dryers.

Find out more by contacting **business@dyson.com**

[i]Average loudness (measured in sonos) reduction compared to Dyson Airblade Tap hand dryers and depending upon variant: Short 39%; Tall 35 %; Wall 36 %.

[ii]Pricing based on 2017 global cost averages. For calculations visit www.dyson.co.uk/calcs

[iii]The environmental impact of electrical appliances and paper towels was measured by Carbon Trust. The calculations were produced using the software Footprint Expert Pro, based on product use over 5 years and using weighted averages of individual countries of use. Dry times for product were evaluated using DTM 769.


dyson airblade wash+dry
Airblade™ hand drying technology in a tap.
Wash and dry hands at the sink.
With Airblade™ technology in a tap, hands can be dried at the sink in just 14 seconds. There's no need to move to a separate drying area, so no water is dripped on the floor.
To experience the latest Dyson Airblade Wash+Dry hand dryer call:
0800 345 7788 or visit
www.dyson.co.uk/forbusiness

Upcoming Railway Events

March, April & May 2019

Rail Live! 2019
05–07 March 2019

Rail Live! is an exhibition and sponsored conference that will be held together with the Digital Rail Show and the World Metro & Light Rail Congress. It will bring together an all-encompassing rail show with a conference about all that is exciting and innovative in the rail sector..

Event website: http://bit.ly/2D0v1Qw
Location: Bilbao Exhibition Centre, Azkue Kalea, 1, 48902 Barakaldo, Bizkaia, Spain

BAPCO Annual Conference & Exhibition
12–13 March 2019

The BAPCO Annual Conference & Exhibition is a crucial event for everyone that is involved in critical communications and public safety solutions. For the very first time it will take place in conjunction with TCCA's Critical Communications Europe, (CC Europe) at the Ricoh Arena, Coventry, UK, on 12–13 March 2019.
Event website: https://www.bapco-show.co.uk
Location: Ricoh Arena | Coventry

Asia Pacific Rail 2019
19–20 March 2019

Bringing together rail professionals for over 20 years, Asia Pacific Rail is one of Asia's premier railway industry events. Supported by MTR and attended by movers and shakers of Asia's rail sector, the event will feature 11 theatres, covering exciting developments in rail freight, mainlines, high-speed rail and metros.
Railway-News Subscribers can enjoy 15% off with promo code: NCRW
Event website: http://bit.ly/2VWyTrK
Location: Hong Kong Convention and Exhibition Centre (HKCEC, Hong Kong)

SIFER 2019
26–28 March 2019

SIFER 2019 – Meet the entire industry at France's premier rail event!
Staged every two years since 1999, SIFER, France's only B2B international industry exhibition, brings together suppliers and manufacturers of the very latest in railway technology, products and services aimed at meeting the complex needs of mainline and urban networks.
Event website: http://www.sifer2019.com/
Location: Lille Grand Palais Exhibition Centre, Lille, France

ERTMS & ETCS: The Future of Railway Signalling
27–28 March 2019

ERTMS & ETCS 2019 will provide the latest insight on the plans for ERTMS implementation and roll-out in the UK. The conference, taking place over two days, is an essential update for all involved with ERTMS and will bring together all parties to share their progress and practical insight on preparing for and operating with ETCS. The event will provide the latest update on ERTMS in 2019 and beyond, considering not only the lessons that can be learnt from the introduction of ETCS but other signalling technologies, including ATO.
Event Code: 372RWN (10% Discount)
How to Register: Call +44 (0)207 067 1597, email us or register online.
Location: Addleshaw Goddard, London

Rail Skills and Workforce Development Forum
02 April 2019

This new and exciting event provides practical insights on how to overcome the critical rail industry skills shortage, exploring how to create additional incentives, including new apprenticeship schemes and programmes. The Rail Skills and Workforce Development Forum one-day event will offer the latest insights on the current skills gap and explore how to support the development of new and existing workforces. Find out how to attract new talent to the industry and how to further invest in and develop your current team and staff.
Event Code: 367RWN (10% Discount)
How to Register: Call 0207 067 1597, email us or register online.
Location: Addleshaw Goddard, London

Eurasia Rail 2019
10–12 April 2019

Recognised as the only railway industry exhibition for the region of Eurasia and one of the railway industry events in the world, Eurasia Rail 2019 will bring together the players of the

region's rolling stock infrastructure and logistics industry.
Event website: http://eurasiarail.eu/Home
Location: Fairizmir, Gaziemir, Izmir, Turkey

SEE Mobility 2019
08–09 May 2019

SEE Mobility is the only international fair in the Western Balkans for transport technologies and services, held biannually. The fair encompasses following areas: road, railway and public transport technologies, railway and public transport infrastructure, interior and exterior in road and railway vehicles with accompanying services and tunnel construction.
Event website: http://see-mobility.com/en/
Location: Metropol Palace Hotel, Bulevar Kralja Aleksandra 89, 11000 Belgrade

SafeRail 2019
14–15 May 2019

Incorporating the 8th annual PTC world congress, the SafeRail 2019 conference will look at new technologies and strategies to maximise efficiency and reliability whilst operating a safe and secure network. SafeRail is the forum for railroads, transit agencies and solution providers to collaboratively work together to create efficient, secure and reliable networks. SafeRail will feature a number of important topics in the rail industry including digitalisation, PTC implementation and asset management.
Event website:
https://www.smartrailworld.com/events/safe-rail
Location: Georgetown Hotel & Conference Center, 3800 Reservoir Road, Washington, DC 20057

Transport Security Congress 2019
14–15 May 2019

In this new digital arena security threats are ever increasing. The Transport Security Congress brings together business and security leaders from different sectors of passenger and goods transportation to unearth and discuss solutions to the evolving security and safety risk landscape.
Event website:
https://www.transportsecurityworld.com/events/tssx
Location: Georgetown Hotel & Conference Center, 3800 Reservoir Road, Washington, DC 20057

Railtex 2019
14–16 May 2019

Register online for FREE now!
Railtex is the UK's premier exhibition of railway equipment, systems and services. It creates maximum engagement for visitors by placing thousands of industry professionals together in one place at one time, featuring companies serving all aspects of the infrastructure and rolling stock sectors. Whether you are an established business looking to promote new services or an up and coming organisation looking to make high-quality connections, Railtex is the event to showcase your offering.
Event website: http://www.railtex.co.uk/2019/english/
Location: NEC, Birmingham, UK

ElectroTrans 2019
14–16 May 2019

ElectroTrans 2019: 8th international congress and exhibition on electrical mobility, products and technologies for electric transport and subway
The 2018 exhibition took place in Moscow, Russia, 14–16 May. It was visited by 2000+ experts from 850 companies from Russia, Belarus, Kazakhstan, Moldova, Ukraine, Armenia, Azerbaijan, Latvia, France, Korea, China, Germany, the Czech Republic, the Netherlands. 76 companies took part in the ElectroTrans 2018 exhibition and its business programme.
Event website: http://www.electrotrans-expo.ru/en
Location: Sokolniki Exhibition and Convention Centre, 5-Y Luchevoy Prosek, Moscow, Russia

3rd Annual Ticketing Innovations Summit
16–17 May 2019

The 3rd Annual Ticketing Innovations summit, which will take place in Berlin, Germany on 16–17 May 2019, will get together with the entire public & private transport community to discuss the future of smart ticketing, passenger information & latest ticketing technologies. Exchange knowledge and informative insights with leading experts and discuss current challenges and dynamics of the transport ticketing field. The main objective of the summit is to achieve extra knowledge and have a better insight, in a professional and great atmosphere.
Event website:
https://www.luxatiainternational.com/product/3rd-annual-ticketing-innovations-summit
Location: Berlin, Germany

Millian Rail Exhibition
16 May 2019

Millian Events have created this exciting exhibition day to help boost business profiles and help you grow your connection networks within the rail industry. Do not miss the opportunity to develop something special. Be sure to secure your place and sign up to Millian Events emails so you are the first to know about new events.
Event website:
https://www.millianevents.co.uk/events/index.shtml
Location: Runcorn (Heath Business park), The Heath Business & Technical Park, Runcorn, Cheshire, WA7 4QX

Transport India Expo
22–24 May 2019

Indian cities are home to millions of vehicles, contributing to traffic congestion, air pollution and inadequate parking infrastructure and operations. There is a need to address challenges like inadequate capacity on public transportation, road safety, poor traffic management, parking issues, poor infrastructure and lack of modal options (including pedestrian walkways). Transport India Expo 2019 will address and showcase end-to-end future solutions for smart transport in the country.
Event website: http://www.transportindiaexpo.com/
Location: Pragati Maidan, New Delhi, India

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Enabling TECHNOLOGY IN MOTION

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Harsco Rail: Safe, Reliable, Cost-Effective Track Maintenance

For over 100 years, Harsco Rail has worked continuously to help railways stay on track by meeting the demands of tomorrow, today.

The result: lower operating costs, higher speeds and – most importantly – improved safety.

Improving the rail grinding product lines is an on-going process at Harsco, where grinding machines utilise a common control system that allows for different configurations, depending on the customer's needs. On-going development of its Jupiter control system allows the company to respond to custom specifications and global requirements.

Harsco's C model grinders have been improved to the point that the life-span of high-wear parts, such as grinding motors, exceeds five years; the life-span of head actuators exceeds ten years. A new, higher-horsepower grinding motor, which has increased metal removal rates at higher grinding speeds on its larger grinders, has a life-span 3 to 5 times longer than the previous generation of grinding motors.

Since obtaining track time is always a challenge, Harsco takes the following into account when designing equipment: grinding machines must consistently perform at a high level. They must be dependable and easy to operate. Operators must be able to identify and repair problems quickly.

Factors driving equipment development vary, depending on the part of the world in which they operate. In heavy-haul operations increased grinding speeds are a primary requirement. In Europe, equipment configuration and surface finish are more important. The flexibility of Harsco's Jupiter control system allows the company to achieve high metal-removal rates and high speeds when needed and provides the ability to achieve EN-standard surface finishes when required.

The life-span of the stone a further consideration. Longer-lasting stones typically remove less metal, impact surface finish, and increase overall cost. Years ago, developing grinding stones was a necessity. While Harsco continues to test and improve grinding stones, the advanced control system on the latest grinders is better able to control stone positioning and behaviour in order to obtain a high metal removal rate from one type of grinding stone, then use the same stone to meet a stringent surface finish requirement. ***"We can also introduce slightly different head lateral shifts independently, which helps control acoustic noise on light rail metros or transit systems,"*** the company said.

"Performance and efficiency are essential, but safety is the most important factor to consider," Harsco Rail said. Over the years Harsco has improved spark-containment, fire-detection, fire-extinguishing, dust-collection, and operator-safety systems, along with systems that are easier to operate and troubleshoot, overall. ***"We have designed to some of the most demanding EN and customer-specific standards,"*** the company said. Most of the grinding equipment incorporates sealed cabins that control dust and hold noise levels to 68dBa.

HARSCO RAIL
Enabling TECHNOLOGY IN MOTION

Mechan celebrates half a century

MECHAN
A CIM Group company

UK rail maintenance equipment specialist Mechan has kicked off its 50th anniversary celebrations with a donation of £5,000 to a much-loved local charity.

Cheque handover with Children's Hospital Charity

The Sheffield manufacturer handed over the proceeds of its fundraising to the city's Children's Hospital at a recent open day to mark its half century.

Alison Riley from The Children's Hospital Charity joined staff, professional partners and key clients at Mechan's 50th anniversary open day, where she was presented with the cheque. A number of events were arranged by the firm to raise funds, whilst clients, suppliers and its parent companies also provided donations.

The open day gave guests a unique behind-the-scenes look at the firm's workshop, highlighting how the highly specialised products it supplies are created. This included a chance to appreciate the sheer size of Mechan's flagship jacks up close and an overview of a bespoke traverser currently in production for a Northern England depot.

Mechan were also joined by the Sheffield Chamber's president Steve Manley, and their account manager Sarah Briggs who were eager to learn more about what the Sheffield business does.

Following the success of its charity initiative, Mechan has pledged to continue supporting Sheffield Children's Hospital throughout 2019. Financial Director Zahir Altaf said: ***"We are very lucky to have this wonderful resource on our doorstep. Many of my colleagues have used its services over the years and it was, therefore, our pleasure to mark 50 successful years by raising much needed funds to support its hugely important work."***

Mechan was founded in 1969 to serve Sheffield's dominant steel


CIM CEO and Mechan Chairman Alain Lovambac's speech

Magician Duncan William impressing at the 50th Anniversary dinner

sector, but following the collapse of the industry in the 1980s, diversification was necessary for Mechan to survive. Its first set of rail car lifting jacks was launched in 1990 and they now stand sentry in some of the most advanced depots in the world.

Just two years ago, Mechan joined French rail infrastructure group CIM, which operates in 120 countries. This has accelerated international development and exports now play a much larger role in the firm's order book.

On Friday, 8 February, a special anniversary dinner brought together Mechan staff, past and present, at renowned Sheffield venue The Crucible to recognise the official 50th birthday. It was attended by founder and guest of honour Tony Hague and presided over by CIM CEO and Mechan Chairman Alain Lovambac, who travelled from France for the event.

He said: ***"We became increasingly aware Mechan's excellent reputation and high-quality depot products were complementary to our own and would broaden our in-house offering. I am pleased to say the management were open to our advances and our relationship is now flourishing. In the relatively short time we've worked together, I've discovered that each and every member of the team shares my passion for great engineering, great products and great service."***

A number of CIM employees and two representatives from parent group CMI (Belgium) attended the dinner and met Mechan staff for the first time. They were entertained by close-up magician Duncan William. Special cakes in the shape of bogie turntables were cut to commemorate the anniversary.

Since becoming part of a larger family of companies, Mechan has been involved in a number of major international infrastructure projects, including the construction of a second metro line in Panama City. It supplied a set of 20 12-tonne lifting jacks, four turntables and 40 vehicle stands to a new build depot in the Nuevo Tocumen area, as part of CIM's contract to install and maintain 50 kilometres of track, catenary and workshop equipment for the project.

For more information about Mechan's wide range of heavy lifting and handling products, telephone **+44 (0)114 257 0563**, visit **www.mechan.co.uk** or follow the firm on Twitter, **@mechanuk**.

Details of Duncan William's close-up magic can be found at **www.magicduncan.co.uk**, whilst the turntable cakes were provided by Jo at **www.jojoscakes.com**.

MECHAN
A CIM Group company

Bogie Turntable cakes for the 50th Anniversary dinner

We hope you have enjoyed our latest Railway-News magazine. Be sure to look out for our next issue.

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

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