



InnoTrans 2012

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REPORT

B 2 B - MAGAZINE FOR THE RAILWAY INDUSTRY

COMMENTARY



Philippe Citroën,
Director General
since June 2011
of UNIFE

SHIFT²RAIL – Joining Forces

Europe 2020 is the name of a flagship initiative that promotes a resource-efficient, low-carbon economy to achieve sustainable growth in Europe. It provides the political framework for tackling the challenges that lie ahead of us for transport in Europe, too. In addition to facing the effect of climate change, we face the challenges of urbanisation, urban pollution, congestion, and energy scarcity. At the same time we have a mandate to provide competitive, comfortable and safe transport options to European citizens. Innovation and technology are key to achieving this—and, in the case of the rail Joint Technological Initiative (JTI), a sector-wide effort to join forces is required. This is done with SHIFT²RAIL.

THEME IN FOCUS
RAILWAY TECHNOLOGY
on pages 4/5

The CEOs of the largest rail suppliers in Europe have committed to this hitherto unprecedented initiative to step up common rail research and develop the rail systems of the future. The aim is to increase capacity to absorb a larger share of traffic, to enhance efficiency and sustainability, and to develop the most customer-friendly, safe vehicles for markets worldwide, while at the same time creating highly qualified jobs in Europe. A real change in behavior always starts with a combined effort – rail operators, industry, and infrastructure managers have answered the call.

COOPERATION AGREEMENT ON THE ECO RAIL INNOVATION INITIATIVE

“Zero Emissions 2050” vision for rail transport draws closer

For the first time, enterprises from the railway industry, railway technology manufacturers, renewable energy firms and research institutions will be working together to jointly achieve the objective of “Zero Emissions 2050” for the railways. With the recent signing of a cooperation agreement, the partners in the “Eco Rail Innovation” (ERI) initiative have now set down the framework for their collaboration in a binding document.

“Eco Rail Innovation” is designed to provide an open communication platform devoted to the strategic orientation of railway transport and its positioning in the social context. The initiative aims to come up with ideas for sustainable product and transportation service development for the railway system, as well as to identify areas where further research is required and to initiate research projects.

A wide range of companies, associations and research institutions are taking part in the Eco Rail Innovation initiative. Together, the ERI partners are working towards a greater focus than hitherto on evaluating potential innovations, business projects and structures in light of the requirements of the transportation market, as a basis for identifying options that have a high chance of practical implementation. The aim is to pursue realistic and manageable approaches that can help implement the joint system strategy of “Zero Emissions 2050”, with a focus on an ecological and economic appraisal along the entire value chain and over the entire life cycle. In the process, the ERI initiative aims to help provide the industry

Continued on ▶ page 2



Photo: Deutsche Bahn/Wurman

Renewable energy sources will be key to achieving the goal of “Zero Emissions 2050” for the railways.

+++ NEWS +++

InnoTrans-Report soon available as an app



An app for the InnoTrans-REPORT: As from the first issue next year (to be published in late February 2012), the REPORT will also be available as an app.

Faster across Russia



Russian Railways have chosen to buy additional Desiro RUS regional trains. The trains will be delivered from 2015 to 2020.

see ▶ page 4

Rapeseed oil saves CO₂



Railways should increase their use of climate-friendly rapeseed oil fuel. But some issues still need to be resolved, e.g. on combustion.

see ▶ page 5

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“Zero Emissions 2050” vision for rail transport draws closer

Continued from ► page 1
with greater assurance in planning the technical innovations that will offer railway operators potential for commercial developments. The long-run objective of the ERI is to promote highly efficient and sustainable mobility on the railways. In order to align the partners' divergent expectations and requirements with the definition of strategic fields of innovation, a major role will be played

by the institutionalised and ongoing dialogue between the railway industry, railway operators and research institutions.

Twelve fields of innovation

To identify common fields of innovation, a study was commissioned last year with the objective of describing the major trends that will impact railway transportation over the period to

2020. The study was further tasked with determining those areas where innovations are required in order to ensure the lasting positive development of the railways. The study's findings were that technical challenges would be the ones to have the largest impact on the railways' competitiveness in the coming years. The study recommended giving priority to investigation of four overlapping fields of

innovation: energy efficiency; vehicle development; environmental impact; and operations control. With the trends described in "Eco Rail Innovation – Challenges for the railway system 2020" posing particular technical and operational challenges for the railway sector, the study's authors recommend analysing twelve further fields of innovation in greater depth.

► www.ecorailinnovation.com

INNOTRANS 2012

Looking ahead to 2012: Berlin once again the focus of the global rail industry

With a little less than a year to go till the next InnoTrans, well over 85 per cent of the display area has already been reserved. Both in some of the trade fair segments and in the supporting programme, visitors to the trade show will see changes: InnoTrans is honing its profile and continuing to evolve.

The world's leading rail transport technology showcase is well on the way to towards writing a new chapter in its success story. With strong overall demand from exhibitors and trade visitors, the trade fair's international appeal is also buoyant: currently the share of foreign exhibitors has reached 52 per cent, a figure which is set to rise. Alongside firms from Europe, there is growing interest in participating in InnoTrans from South America and Asia. From China, railway equipment manufacturer CNR has already confirmed it will be in attendance

again, while the country's second large railway concern, CSR, will be taking part for the first time in 2012. A spokesperson for CSR explained: "Executives from our subsidiaries have already exhibited several times at this event and were delighted with the response. InnoTrans is the world's largest and most highly specialized trade fair for the industry, which is why CSR is taking part." InnoTrans continues to develop in numerous areas. In 2012, for the first time, the trade fair will feature a **Public Transport & Interiors (PTI) Hall Forum**. The PTI Hall Forum will combine procurement and design, which are important considerations in the public transport sector, under one roof. One focal point at the PTI Hall Forum will be the **DB Suppliers' Forum**, where Deutsche Bahn will be looking to enter into a dialogue with rail industry suppliers. For Dr. Kay-Uwe May, head of Procurement Strategy of Deutsche Bahn AG, the ad-

vantages of the forum are plain to see: "This is where suppliers from all parts of the world will be gathered. So it offers a perfect opportunity to obtain an overview of the latest developments on the supply market and to meet directly with suppliers." Design counts in transport too. Thus the focus at the **International Design Forum** will be on interior design and designs for vehicles operating on public transport networks. The Design Forum will also demonstrate the potential for innovative and creative solutions in the use of materials. As well as interacting in the PTI Hall Forum, firms will have a new opportunity to "take the stage". In their own **Speakers' Corner**, exhibitors will have the opportunity to introduce their companies and products. The decision by the trade fair management to set up this exclusive presentation platform is in response to the many requests from companies in the Public Transport and Interiors segments.



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EARS to become the Global Rail Leaders' Summit

Since 2000 the European Asian Rail Summit (EARS) has been a regular feature of the InnoTrans Convention. In 2012 this symposium will again be one of the highlights of the supporting programme, when it will be taking place under a new name: **Global Rail Leaders' Summit (GRLS)**. The name has been changed in response to the positive developments

that have been taking place in the rail sector outside Asia and Europe. For some time various interesting railway projects in the Middle East, the USA and South America have been attracting worldwide attention to other regions, and the GRLS is a response to this development. The Global Rail Leaders' Summit is being organized by Deutsche Bahn AG and Messe Berlin.

INTERNATIONAL DESIGN FORUM

Topic of the future: design and mobility in public transport

The International Design Center Berlin (IDZ) will be focusing on design-relevant aspects of public transport at InnoTrans. Experts will be assessing the relationship between design and mobility from a variety of angles. Cornelia Horsch, director of the IDZ, spoke to us about the International Design Forum at InnoTrans 2012.

Ms Horsch, design and mobility are closely connected. Where exactly do you see the interfaces between design and public transport?

Design and mobility are closely interlinked. One of the fundamental challenges of our times is to fundamentally rethink the concept of mobility and make it sustainable. Looking to the future, the evolution of public transport is precisely one area where a number of issues call for consideration. Amongst others, these include socio-cultural changes and challenges such as demographic shifts; how to combine sustainability with a high degree of personal individualisation; but at



Cornelia Horsch, director of the International Design Center Berlin (IDZ): "Design and mobility are closely related."

the same time also down-to-earth economic factor aspects.

The Design Forum will promote exchanges of views with exhibitors and

trade visitors. Which key aspects of design will the Forum address?

The focus of the Design Forum will be on the nexus between material and creativity. Innovative and futuristic materials

will open up new possibilities for designers. Translucent concrete, technical ceramics or so-called smart materials: the use of innovative materials fosters the development of new products – and in some cases may be what makes them possible at all.

The topics at the International Design Forum will be addressed in a variety of different formats. Can you give us some examples?

The IDZ will be curating an exhibition that will present innovative materials as illustrated by actual practical applications. In addition, keynotes by well-known speakers will present their positions in the area of material and design. There will be a panel discussion where experts, practitioners and exhibitors, along with designers, producers and researchers, will address themes and issues in exchanges with the audience. There will also be an opportunity for exhibitors and designers to

present their products and services in a "pecha kucha" format. This brief and time-limited presentations aim to encourage talks and an exchange of views – this is one of the main goals of the Design Forum, along with the opportunity to make new contacts and to network.

To come back to the panel discussion, what are the key topics that the high-ranking panelists will be addressing?

To point up the interlinkages between materials and creativity, the invited experts will be discussing questions regarding the development of new materials, but also other drivers of creativity and innovative developments. A further key topic will be issues of sustainability and accountability in design. We are convinced that design can make a major contribution to the sustainable development of society. Public transport plays a hugely important role in this.



NEWLY DEVELOPED BALLAST CLEANING MACHINE: THE RM 900 VB

Plasser & Theurer assists Strabag Rail in expanding its fleet

Over the past several years, Austrian manufacturer Plasser & Theurer has been pursuing the development of a variety of high-output ballast cleaning machines with dual screening. The RM 900 VB model was recently handed over to Strabag Rail GmbH in Germany. According to the manufacturer, key features of the new model include high operating speed to optimise utilisation of short track closures, and in-depth cleaning to ensure lasting permanent way quality.

Major benefits for Strabag Rail GmbH were also the cost-saving recycling of ballast, along with the versatility of the machine. The fully hydraulically driven 22-axle RM 900 VB is composed of a screening car, a pre-separator and crusher, an excavator and a two-part car, the power car with rail sweeping machine and a tanker wagon/measuring car with integrated track stabiliser. Thanks to its modular construction the machine can be extended as required. According to Plasser & Theurer, the machine includes all the work units necessary for ballast recycling with optional supply of new ballast, ballast cleaning also with optional addition of new ballast, and full excavation with optional new ballast supply. For effective ballast cleaning the RM 900 VB has high-quality excavating units and a high-output eccentric

screening unit with an atomised-water dust suppression system; in addition, it has a pre-separator and crusher unit for the ballast recycling. Another element in the machine's array of features are the dual dynamic track stabilisers that help maximise the accuracy of laying of the track. An innovative feature is the brooming system, which according to Plasser & Theurer not only sweeps the sleepers clean but can also sweep up excess ballast, thereby offsetting any shortage of ballast in the excavated area.

Fine-tuning of new ballast proportion

The conveyor system of the RM 900 VB is able to take over the new ballast carried in the material conveyor and hopper units and place it in the track together with the cleaned ballast. The proportion of new ballast can thus be fine-tuned according to the prevailing situation. Since Strabag Rail GmbH also has 20 MFS-100 available, the entire transport of spoil and fresh ballast can be handled on the work track without disrupting adjacent tracks.

All the conveyors on the RM 900 VB are chain conveyors, with an automatic conveyor monitoring system making for ease of control. The chief operator is also kept continuously informed of conditions in the two screening units via a video system.



The excavating unit of the RM 900 VB with three-finger excavating chain (foreground) is followed by ballast distribution and profiling.

Photos: Plasser & Theurer

■ PORR WINS BIGGEST-EVER ORDER

Contract awarded for Stuttgart 21 tunnel projects

In August a consortium led by Austrian contractor Porr was awarded the contract for two tunnel construction projects relating to the "Stuttgart 21" infrastructure project. Overall, the order is worth a total of some 700 million euros.

Alongside Porr, the consortium comprises Austria-based Hoch- und Tiefbau GmbH Ötu-Stettin, construction company G. Hinteregger & Söhne of Salzburg and Swietelsky Tunnelbau GmbH und Co KG of Linz. The two tunnel construction sections are part of the 175 kilometre long railway construction/upgrade project for the Stuttgart – Ulm – Augsburg link, part of the European Rail Infrastructure Masterplan (ERIM) of the International Union of Railways (UIC).

On the "Fildertunnel" section the consortium will build the approximately 9.5 kilometre long "Fildertunnel" as well as

the branches to Ober- and Untertürkheim, as far as the southern end of the new main railway station. This tunnel will provide a connection between the main station and the airport and trade fair grounds. The "Tunnel Ober-/Untertürkheim" project also awarded to the consortium provides for construction of an approximately 6 kilometre long underground route running from Stuttgart's main station towards Ober-/Untertürkheim. The particular challenge posed by this section is the need to tunnel beneath the River Neckar.

Both tunnel structures consist of two parallel single-track tunnels connected at regular intervals by transverse tunnels. The construction work is scheduled to be completed in February 2018. The awarding of this construction contract means that around one-quarter of the total volume of work being put out to tender under the "Stuttgart 21" rail project has now been placed.

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MULTI-BILLION EURO DELIVERY AND SERVICE CONTRACTS FOR DESIRO RUS

Russian Railways place further order with Siemens and Sinara

Russian Railways (RZD) have placed an order for further Desiro RUS type regional trains with Train Technologies, a joint venture of Siemens and the Russian rail technology manufacturer Sinara. The order, for which a preliminary contract was signed in June of this year, is for the delivery of 1,200 cars and is worth about two billion euros.

RZD has also awarded Siemens a 40-year maintenance contract, effective 2013 and covering a total of 54 trains of the same type that RZD had already ordered in 2009 and 2010. This maintenance contract is worth around 500 million euros.

Production is due to begin in 2013 at the Ural Locomotives factory near Yekaterinburg, where Siemens has been manufacturing electric freight locomotives since 2010 under the terms of a joint venture. "In all, we shall be investing more than 200 million euros in the Desiro production setup – in modern buildings, machine tools and personnel training," said Siemens CEO Peter Löscher at the signing cere-

mony. "Siemens is the most successful non-Russian supplier of railway technology in that country. By localizing production activities, we are strengthening this market position and securing our close ties with the Russian railway industry." Hans-Jörg Grundmann, CEO of the Siemens Mobility Division, added: "The trains will be delivered in the period from 2015 to 2020 and deployed above all in Russia's rapidly growing metropolitan regions.

This order clearly shows that conurbations are a huge growth market. Studies forecast that worldwide around five trillion euros will be invested in urban transportation systems by 2035. "With the latest order for nearly 300 Desiro trains, Russia is creating the basis for modern and eco-friendly urban transportation for the future.

These new regional trains aim to offer enhanced comfort for both passengers and train personnel. Besides that, compared to the trains currently operating in Russia, Siemens says the new trains will consume roughly 30 per cent less energy. Going by the name of Lastochka ("Little Swallow") at RZD,



The Siemens Desiro RUS type trains for regional rail service can operate at a top speed of up to 160 km/h. In Russia, they go by the name of Lastochka ("Little Swallow"). The first units are due to enter service in Sochi in autumn 2013. Photo: Siemens design study



Pushing the button together (from left): Peter Löscher, Siemens CEO, German Federal Transport Minister Peter Ramsauer, Siemens Mobility CEO Hans-Jörg Grundmann, and Vladimir Yakunin, President of Russian Railways RZD. Photo: Siemens

the Desiro RUS can operate at a top speed of up to 160 km/h. The vehicle is a development of the Desiro ML and has been specially adapted to the demands of the Russian market. This means not only resistance to temperatures as low as minus 40° Celsius, but also car bodies and bogies that are built for 1520-millimeter broad gauge track.

40-year maintenance contract concluded

Additionally, Siemens will take over the maintenance of Russian regional trains for a period of 40 years. The first 38 Desiro trains were ordered by RZD back in 2009. They have been in production at the Siemens plant in Krefeld-Uerdingen, Germany since April 2011. Another 16 were then ordered by RZD at

InnoTrans in September 2010. As of the end of 2012, this second batch of trains will be manufactured with increasing localization in Yekaterinburg. The depots in Adler near Sochi and in Moscow and also the maintenance personnel will be made available by RZD, while Siemens will be responsible, among other things, for the management of the service work, for the logistics and for the supply of spare parts.

The 40-year contract includes preventive maintenance of the Desiro RUS – involving activities such as checking the brake and passenger comfort systems – and all inspections which have to be conducted at different intervals.

In peak-load periods, as many as 80 people will be working on the trains in both depots.

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Talent 2: EBA gives go-ahead for double-heading

In an announcement in mid-July of this year, Germany's Federal Railway Authority (Eisenbahn-Bundesamt – EBA) in Bonn has given the go-ahead for a further stage in the approval procedure for the Talent 2, whereby two four-car units of this vehicle family can now also operate together in Nuremberg. Prior to that, the manufacturer Bombardier had made design changes to the vehicle and in short order submitted the final related safety certificates to the EBA. This latest stage in the Talent 2 approval process was described by EBA President Gerald Hörster as the "satisfactory outcome of intensified consultation with the manufacturer". The task now was to gradually work through the steps that still needed to be taken. Initially, the trains will be given approval for a maximum speed of 140 kilometres per hour, with the aim being to increase this to 160 kilometres per hour in the near future.

Gino AG to supply further braking resistors

Siemens has ordered a further 96 braking resistors from Gino AG Elektrotechnische Fabrik in Bonn for the metro project in Oslo (exercising the third option). The total number of previously ordered options now amounts to 345 resistors, according to Gino. The convection-cooled resistors are characterized in particular by their maintenance- and installation-friendly design, and are equipped with the patented resistance system 3PQ4.

Progress Rail Services to locate assembly operation in Brazil

Progress Rail Services, a subsidiary of Caterpillar Inc., announced the company's plans to locate a locomotive manufacturing facility in Sete Lagoas, in the state of Minas Gerais, Brazil, to serve the South American diesel-electric locomotive market. Progress Rail

has agreed to open the facility to better serve its Brazilian and South American customers, and will operate the facility through its subsidiary, MGE Equipamentos e Serviços Ferroviários Ltda. (MGE). Progress Rail anticipates this project could create up to 600 jobs when at full capacity. The company plans to make a significant investment to open and modernize the existing manufacturing plant in Sete Lagoas, in the state of Minas Gerais. The facility will assemble and manufacture Electro-Motive Diesel-branded locomotives in the 12,000 square meter space on a 100,000 square meter site. Electro-Motive Diesel Inc. is a subsidiary of Progress Rail Services with approximately 33,000 diesel-electric locomotives in operation globally. "We are proud to announce the opening of this state-of-the-art facility, which will allow us to produce locomotives locally for our Brazilian customers, and also continue to provide quality products to our customers around the world," said Billy Ainsworth, president and chief executive officer of Pro-

gress Rail Services. "We believe the Sete Lagoas community, in the state of Minas Gerais and the country of Brazil,

will offer our organization an exceptional location from which we will produce world-class locomotives."

SMA battery chargers for the Civity family

SMA Railway Technology GmbH of Kassel, Germany, is to supply battery chargers for the new regional train platform Civity developed by CAF. Each multiple unit is equipped with a certain number of battery chargers depending on the vehicle length. The

devices are mounted on the roof and supplied with 3 x 400 V AC. The performance of the battery chargers is 10 kW and the output voltage can be adapted to project-specific requirements, according to the manufacturer.



A look inside the SMA battery chargers for the "Civity" platform. Photo: SMA

CLIMATE PROTECTION FOR THE RAILWAYS

Trains fuelled by vegetable oil can save large amounts of carbon dioxide



Travelling through lush countryside: type VT 612 diesel railcars of Deutsche Bahn. Rail vehicles are one of the forms of transport where researchers aim to establish rapeseed oil fuel as a power source.

Photo: Deutsche Bahn/Weber

In future, railway trains should run increasingly on home-grown rapeseed oil fuel – that is the objective of a joint research project by the Karlsruhe Institute of Technology (KIT) and its Piston Engines Institute (IFKM) together with the Technology and Support Centre (TFZ) in Straubing. According to the KIT, the use of fuel derived from rapeseed oil (known in the USA as canola) in such applications could reduce greenhouse gas emissions without compromising the production of human and animal foodstuffs.

The scientists are currently investigating how to achieve efficient combustion with minimum emissions. On a high-

pressure glass test bed the research team under Professor Ulrich Spicher is looking to optimise the way the rapeseed oil fuel disperses into minuscule droplets in the combustion chamber and mixes with the combustion air – the prerequisite for transforming the greatest possible proportion of the energy stored in the fuel into engine performance while at the same time minimising noxious emissions. “In the coming year we shall be continuing our research using real engines in railway railcars and also inland waterway ves-

els,” reported Dr. Sören Bernhardt of the IFKM. The power plants concerned are modern diesel engines with injection systems specially tuned to use rapeseed oil fuel. On this part of the project, the IFKM scientists are therefore working closely together with the researchers from the TFZ, who are focusing chiefly on the fuel quality. “Today, the use of rapeseed oil fuel already represents a feasible means of

reducing anthropogenic, that is man-made, emissions of carbon dioxide (CO₂),” explained Dr. Bernhardt. Upon combustion, biofuels release only about as much CO₂ as the plants absorbed from the atmosphere when growing. When cultivation, processing and transport are also taken into account, the researchers say that rapeseed oil fuel that meets the DIN 51605 standard saves at least 57 per cent of greenhouse gas emissions compared with diesel fuel.

Large potential for reducing greenhouse gas emissions

“On agricultural land in Germany, with a balanced crop rotation, sufficient feedstock could be grown to substitute around 10 per cent of the country’s total consumption of fossil diesel fuel without impacting the production of human and animal foodstuffs,” according to Dr. Edgar Remmele of the TFZ. This was, he said, one reason why the KIT and TFZ were focusing in particular on rapeseed oil fuel applications such as the railways, inland waterways and agriculture. Another reason was that the range of engines for which modifications would need to be developed was manageable, and it could be ensured that the engines were always run on the same type of fuel.

“In future we should give greater consideration to using pure biofuels in areas where it makes sense. But at the same time, we need to reduce overall fuel consumption. That’s the only way to meet the climate protection targets,” said Dr. Remmele. The project is being funded by Germany’s Federal Environmental Foundation, with support from several engine and component suppliers as well as potential users.

RESEARCH AND DEVELOPMENT OF INNOVATIVE TECHNOLOGIES

GE launches Global Centre of Excellence in Italy

GE Transportation has announced the inauguration of a centre of global excellence for leading railway signalling systems located in Sesto Fiorentino in Tuscany, near Florence. The new centre works on the research and development of innovative technologies for the transportation sector, including software and hardware platforms for railway signalling and urban transport systems such as subways.

Such technologies are paving the way for the new generation of integrated and intelligent rail control solutions that rail operators now need to cost efficiently solve their operational and service improvement challenges. The opening of the new centre was made possible after GE won a tender by the Region of Tuscany for strategic R&D projects in information and communications technologies and advanced mechanics. The total investment for the Centre is equal to 15 million EUR, including funds allo-

ated by the Region of Tuscany. The new centre currently employs about 30 individuals, primarily engineers, including 15 technologists already recruited from the University of Catania and from the University of Pisa and has granted six scholarships. This Italian centre, which will develop new technologies for the domestic and global market, is expected to play an important role in GE’s global strategy and will work jointly with centres in the United States, Asia and Europe. “The GE Transportation Centre in Tuscany is a project that will showcase technological excellence, not only on a national level, but worldwide, demonstrating that Italy is capable of offering enormous talent and significant innovation,” said Pierre Comte, President of GE Transportation Intelligent Control Systems (ICS). “The initiative of the Region of Tuscany proved instrumental, as the regional administration supported us with the utmost efficiency and speed.”

“GE Transportation is rapidly growing its capabilities in signalling software and technology to serve transportation customers around the

globe with vital safety and network optimizing projects,” said Stephane Feray Beaumont, ICS Program Managing Director. “The Tuscany cen-

tre will be a hub for ground breaking ideas from the brightest minds in the industry.”

www.ge-rail-labs.com



In 2010 GE sent a PowerHaul locomotive to InnoTrans. Now the company aims to further expand its European presence.

Photo: Messe Berlin

NEW METRO INTERIOR DESIGN

The Inspiro metro platform: Siemens emphasises comfort and looks

In developing its new metro platform concept "Inspiro", Siemens Mobility, global supplier of integrated transport solutions, placed a major emphasis on coming up with a new vehicle design. The most important objective: to create a pleasant sense of space and hence a positive travel experience for passengers.

The new vehicle was designed in cooperation with Designworks USA, a subsidiary of the BMW group, which was responsible for both the exterior and interior design.

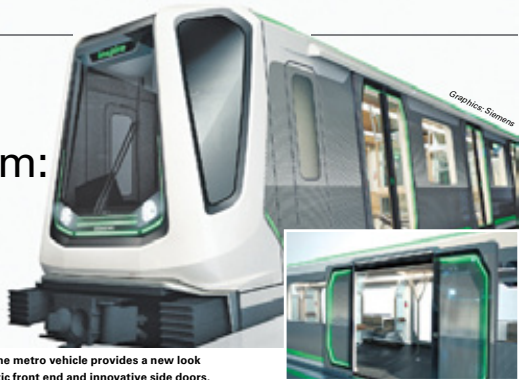
The Metro Inspiro assignment tasked the design team to live up to the increased demands on travel comfort and spatial perception, optimise transport capacities and provide regional public transportation services with additional possibilities for individualisation. Striking design features were conceived in order to give Siemens an unmistakable presence on the rails. Laurenz Schaffer, President of Designworks USA, summarises: "When competing with each other, towns and cities will secure advantages through the quality of their transportation systems. The possibilities for megacities to combine mobility with the interests of the public is the most crucial task when designing mobility."

In order to provide room for the individualisation of the Metro Inspiro, it was designed as a "platform". In addition to aesthetics and functionality, sustain-

ability and economic efficiency requirements were right at the top of the design studio's list of priorities. This is visible, inter alia, in the innovative door-light graphics, based on the hourglass principle, which provide passengers with vital information on the remaining boarding time. This concept improves the flow of passengers boarding and exiting the train, thereby facilitating an increase in frequency.

Natural references in the interior

Core feature of the interior is the innovative handrail concept "Lighttree", which is reminiscent of branches on a tree and provides passengers with numerous advantages. A large number of smaller rails protrude from a tree-like structure, creating ample space for passengers to hold on. The "Lighttrees" are designed so as to help providing sufficient individual space for each passenger. Moreover, novel surface textures made possible by state-of-the-art materials ensure firm and secure grip. In addition to their structure, the handrails owe their name to the implemented light concept. Thanks to discreet lighting from above, they themselves become atmospheric pools of light within the interior of the train. Special light control, which emits light in changing colours, leads the interior of the metro adapt to daytime light conditions. Hence there is a higher amount of cold light in the morning and a high-



The design of the metro vehicle provides a new look with its futuristic front end and innovative side doors.

her amount of red light in the evening, the natural course of the day is also being reflected underground. Like the exterior door-light graphics, the strategically installed "Lighttrees" provide an enhanced passenger flow management. The Metro Inspiro also lends local public transport a sustainable character and a new quality thanks to wide entry and exit areas, wide doors, improved acoustics through the use of Cork

Blend floor insulation and a sophisticated lightweight seat concept. Operators may choose between contrasting moulded wood and fresh colour concepts, which each reflect either a warm and emotional or a technically-oriented interior ambience.

Operators have the option of mounting seats longitudinally, laterally or in a mixture of the two. There are no electrical or appliance cabinets in the passenger

area, creating more space for travellers and enabling the operators to optimise passenger capacities. In the selection of materials – both for the car bodies and the interiors – Siemens set great store by recyclability. At the end of its operating life, some 95% of the material in the cars can be recycled. Taken together, a series of innovative and weight-optimised components help lead to reduced energy consumption.



More space for passengers in the new Inspiro metro from Siemens: the interior has more standing room in the passageways, a new seating concept, and wider doors.

ALSO FOR OUTDOOR USE

New aluminium seat from Citipro

Citipro is a seating system manufactured by the Italian Ruspia group, headquartered in Turin. Ruspia has now launched its new aluminium seat. According to the company, the seat fits perfectly the adaptability and versatility of our times: it can be powder-coated, it can be anodized – which makes it perfect for nautical furniture since it doesn't rust – or it can be supplied as a standard aluminium model with polished finishings which make it ideal for furnishing buses and metros.

The load-bearing of the aluminium structure permits easy installation of the seat and back, and it can be personalized for specific requirements. Moreover it meets the DIN-EN-45545 fire and smoke regulation – because for the manufacturer "safety is first". Citipro, the manufacturer says, is therefore suited not only to urban and interurban public transport



Photo: Ruspia

(buses, trains and ferries), but also for outdoor use as a street furniture system. Owing to its easily replaceable components, the company claims the seating system is a perfect antidote to vandalism. Ruspia has been manufacturing innovative, strong and reliable accessories for vehicles since 1973, transforming plastic, steel and leather.

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OLD LINE BACK IN SERVICE

Train-trams for the Balearic island of Majorca

SFM (Serveis Ferroviaris de Mallorca), the transport operator on the Balearic island of Majorca, has placed an order with Vossloh Rail Vehicles for six new train-trams. Fitted with drive technology from Vossloh Kiepe, the first vehicles have already entered service.

The train-trams are being operated on the line from von Manacor to Artá, on Majorca's north-eastern coast. Manacor is the second largest town and the main transport hub in the eastern part of the island. By the spring of 2011, the already existing railway line from there to Artá had been re-conditioned and electrified in order to be ready to accommodate the new rolling stock.

The declared aim of the project is to open up urban areas on the island to the places that the line runs through. The rolling stock to serve that purpose needs to be able to reach a high

speed in interurban operation and at the same time to offer fast acceleration on tram routes. Hence the particular characteristics of this type of rail vehicle: the train-trams operate as bidirectional vehicles both in regional rail services and in the urban public transport system as trams. In the urban mode, they can reach a maximum speed of 70 kilometres per hour, while in the interurban mode they can accelerate to as much as 100 kilometres per hour. The advantage of this configuration is that it avoids the inconvenience for passengers of having to change between dif-



Vossloh Rail Vehicles, based in Albuixech near Valencia, Spain is responsible for the design, manufacture – the photo shows car bodies being assembled – and delivery of the new train-trams.

Photo: Vossloh

ferent train types: the train-trams halt at tram stops in town and at the suburban railway stations outside.

Single source for mechanics and electrics is a first

Within the Vossloh AG group, this order has a special significance, since it represents the first in the company's history in which the supply of both the mechanics and electrical equipment is being sourced from a single provider. In

this case, Spanish-based Vossloh Rail Vehicles, of Albuixech, Valencia, has responsibility for the design, manufacture and delivery of the new train-trams. Like Vossloh Kiepe, the firm is a wholly-owned subsidiary of Vossloh AG.

Düsseldorf-based Vossloh Kiepe is a specialist in traction electronics, and is taking charge of the design, delivery and ultimately the commissioning of the traction kits for the bidirectional vehicles.

The train-tram drive is equipped with three IGBT direct pulse inverters (DPUs). Each of these controls two low-maintenance 4-pole 3-phase asynchronous motors. Thanks to the use of the latest IGBT module generation, it has been possible to develop highly compact and low-weight DPUs. As a result, all of the sensors and the inverter control have been integrated as well. The traction kits provide acceleration of 1.2 m/s².

NEW CITARO 2 GENERATION READY FOR LAUNCH

Hamburger Hochbahn tests bus models

Hamburger Hochbahn AG is testing the new generation of Citaro buses. The Hamburg transport operator is deploying four so-called "customer fleet triallers" in revenue service prior to the scheduled start of series production of the Citaro 2 (C2) model late in 2011. The four vehicles are the first of the successors to the original Citaro model to be delivered by Mercedes-Benz.



Photo: Hamburger Hochbahn

In a final test prior to commencement of series production, four so-called "customer fleet triallers" are in operation with Hamburger Hochbahn AG.



Photo: Mercedes-Benz

View of the passenger compartment: The extruded aluminium horizontal grab rails have an oval cross-section and a larger diameter, designed to make them especially easy to grasp. In addition, the new shape enables light fittings to be integrated in the grab rails, as well as exchangeable advertising inserts with clamp fastening, or even ticker-style displays in the grab rails – a completely new form of advertising.

According to the commercial vehicles arm of Mercedes-Benz, 31,000 units were built during 13 years of ongoing development. The new generation features major modifications compared with the original Citaro buses. For example, according to the manufacturer a new framework structure makes the latest Citaro significantly lighter, resulting in a higher payload that enables more passengers to be carried. The latest model also features a new interior and exterior design. There are additional advances in the driver's cockpit: a multi-function steering wheel simplifies menu navigation, with results being displayed on the new colour screen. Amongst other things, the display continuously shows the fuel reserve and the remaining AdBlue additive, along with the time and the outside temperature.

A total of four batteries are housed underneath the driver's workstation, which itself is positioned six centimetres higher. This gives the driver a better overview at passenger eye-level. There is also significantly enhanced front collision protection, while the repositioned grab rails and modified stop request buttons on the Citaro 2 are designed to further facilitate travel for mobility-impaired passengers in particular.

+++ NEWS +++ NEWS +++

Emergency services use digital radio in Hamburg's metro tunnels

Effective immediately, the digital radio system for security authorities and organisations (BOS – Behörden und Organisationen mit Sicherheitsaufgaben) launched in Hamburg in 2010 can now also be used by the fire brigade, police and rescue services in tunnels, underground stations and moving metro trains. The U4 currently still under construction has also been pre-equipped, and will have a BOS digital radio system when it opens.

The BOS digital radio network installed by Hamburger Hochbahn AG for underground coverage is considered to be the biggest of its kind nationwide, and thus is in the way of being a kind of pilot for the whole of Germany. As Hochbahn CEO Günter Elste explains: "For us, the safety of our passengers has the highest priority. We already cooperate very well with the emergency services, and the new digital radio system will further improve that at the technical level. This professional cooperation enabled us to implement this project within a very short time frame."

Installing the underground network took around two years and cost in the region of two million

EUR. Alongside the installation of the network, work is ongoing to equip over 3,000 emergency service vehicles, scheduled to be completed by early 2013.

FirstGroup opts for e-ticketing machines from Höft & Wessel

FirstGroup plc, headquartered in Aberdeen, and Höft & Wessel AG, Hanover/Germany, have signed a framework agreement for the supply of electronic ticket machines (ETMs). The agreement is part of First's new e-ticketing system for its English bus fleet. The initial order volume covers a solution with 4,000 ETMs tightly integrated into First's IT system. Further orders with a volume of 1,500 machines and more are planned. The supply contract also includes the development of a contactless credit card option using the EMVco standard (Europay, MasterCard, Visa contactless) for the ETMs. EMVco has become an international standard and supports fast contactless payment and ticketing. Deliveries under the large-scale order have already commenced.

The United Kingdom's largest bus operator has previously already ordered ETMs from the Almix division of Höft & Wessel for its regional operation utilities in Wales and Scotland.

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The InnoTrans Virtual Market Place is open round the clock, all year round: the wide variety of products and services on offer make it an ideal platform to bridge the gap between trade fairs.

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But the platform also offers benefits for trade visitors, the media and all others with an interest in the railway sector. How? by giving them a rapid overview of companies and products in the railway industry as well as information to aid them in planning and following up on their visit to the trade fair.



It also offers a permanent, uncomplicated channel for contacting firms and for browsing the vacancies advertised by exhibitors.

📍 www.virtualmarket.innotrans.com

NEW IN 2012 CP Career Point Café at InnoTrans

An excellent way to help inspire upcoming generations to opt for a professional career in the railway industry—that's the idea behind the **Career Point Café** in the open-air display area. During the weekend of 22nd–23rd September 2012 companies and associations will now also be able to give youngsters information on internships, career starts and career development on the days the trade fair is open to the general public.

The **Career Point Café** offers firms space to present their corporate profiles; hostesses can also be provided to help with visitor reception. So there will be an optimum environment for fruitful discussions between the industry and potential new hires. The **Career Point** concept had already in previous years proven a successful jobs fair at InnoTrans with its **Career Point Mark** and the **Career Point Pavilion** as the main features. In future the **Career Point Café** in the open-air display area will become an additional feature. For more information on the **Career Point**, visit

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Train halts for father-to-be

Wouldn't it be nice if train crews could always be so helpful? A Danish man was rushing as fast as he could to Odense, where his wife was in labour in a hospital. But in his haste he boarded an express train in Copenhagen that runs

straight through to Aarhus without stopping. When he realised his mistake, he turned to the train crew in desperation. As train conductor Mette Hansen recounts the story: "He was white as a sheet and in a complete funk because he was on the wrong train." She first

put the father-to-be in a quiet corner and then spoke to the engine driver. Fifteen minutes later it was done and dusted: the train made an unscheduled stop in Odense. Mette Hansen recalls happily: "He was overjoyed. He said he'd love me for the rest of his life."

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