



# InnoTrans 2008

## REPORT

B 2 B - M A G A Z I N E F O R T H E R A I L W A Y I N D U S T R Y

Berlin, 23rd – 26th September 2008

## Welcome to the biggest and best InnoTrans yet!

*All signals are set to green: 23rd September sees the opening of InnoTrans 2008 – the world's most important transport technology fair – at the Berlin exhibition grounds situated beneath the city's landmark TV tower. Since it was first held twelve years ago, this leading international trade fair has grown and grown. But the quantum leap that has taken place since InnoTrans 2006 puts the 2008 event on a growth path almost without parallel in the international trade fair landscape.*



For the first time, the trade visitors drawn to InnoTrans from all over the world will be able to use a second large entrance at the northern end (right) as well as the southern entrance (left).

This year, the amount of exhibition space will be some 50,000 square metres larger than that occupied by the last event, and means that InnoTrans 2008 – covering 150,000 square metres of indoor and outdoor display space – will take up almost the entire Berlin exhibition grounds!

### InnoTrans means international presence

The growth in the number of exhibitors has been equally tempestuous. Two years ago, the world's leading trans-

port technology fair welcomed around 1,600 exhibitors; this year, the number is edging close to the 1,900 level – up another 300 on InnoTrans 2006! The growing list of exhibitors has meanwhile been joined by further major companies, in particular firms from Australia, countries of the Middle East and Eastern Europe. This large international presence is one of the outstanding features of InnoTrans: this year, companies from 41 different countries will be represented in Berlin. Approximately one-half of all exhibitors come from outside Germany. No other trade

fair in this industry enjoys anywhere near such a global positioning. This status is also evidenced by another development: between 23rd and 26th September, a total of 15 national industry associations will be “flying the flag” at InnoTrans with a view to underscoring the strength of the industry in their respective countries. Among those present will be national associations from Australia, France, Great Britain, Korea, Spain, Sweden and Switzerland. InnoTrans has also established itself as an excellent platform for marketing and communication

activities, an opportunity that is also increasingly being used by transport operators such as Germany's Deutsche Bahn, PKP (Poland), ÖBB (Austria), Russian Railways, SBB (Switzerland), SNCF (France) among others.

### InnoTrans means innovation

But it is not just in terms of quantitative growth that InnoTrans 2008 stands out. The transport technology fair by its very name embodies innovation in transport. Innovation naturally means

first and foremost the new and improved products and services presented by exhibiting firms. Never before have there been as many as this year. Some idea of this feast of innovations can be gained by viewing the Innovation Report, available on the InnoTrans website at [www.innotrans.com](http://www.innotrans.com).

There are also new developments in terms of the overall concept of the event and site utilisation. In addition to the exhibition halls on the southern part of the site, this year's InnoTrans

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## A high-speed trip through China

China's first high-speed trains have been in regular revenue service since the beginning of August 2008. The 115 kilometre long line connecting Beijing and Tianjin is the world's fastest rail link. Travelling at speeds of up to 350 kilometres per hour, the

Velaro CN – or the CRH3, as the train is called in China – cuts the journey time from one hour to just 20 minutes. The train is based on the ICE3 design as used by Deutsche Bahn, but like the Velaro RUS it is wider. The new standard-gauge

track linking the two cities cost around 2.9 billion US dollars to build. The line is designed such that in theory the trainsets, each carrying up to 600 passengers, can operate with a three-minute headway.



During recent trials, the CRH3 reached a speed of 394.3 kilometres per hour – a new Chinese record.

Photo: Siemens

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# Welcome to the biggest and best InnoTrans yet!

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will for the first time be occupying the historic daylight halls in the northern sector of the exhibition grounds. This will enable trade visitors to gain an overview by making a proper circuit through the displays. The new site concept also allows for a better structuring of the trade show segments. Moreover, it also allows a second large entrance area to be opened up for trade visitors at the northern end of the exhibition grounds, with very convenient connections to public transport just like the southern entrance. Approximately 70,000 trade visitors from over 100 countries are expected to come to InnoTrans 2008.

An InnoTrans innovation that dates back some years already was the decision to lay out the railway sidings at the southern end of the exhibition grounds. Even in 2004 and 2006, however, the demand for space to present vehicles and systems on track was so great that it proved difficult to accommodate. That is why InnoTrans is further enhancing the appeal of its unique selling proposition: work on extending the existing track by a further 1,500 linear metres is virtually complete.

The individual trade fair segments are also seeing qualitative improvements. Over time, they have taken on a life of their own and become important elements in the overall InnoTrans concept. Segments such as Railway Infrastructure and Public Transport have meanwhile become worldwide leaders in their respective sectors even compared with specialised events. One of the main themes of this year's InnoTrans is sustainable and environmentally friendly mobility, and this is reflected among other things in the growth in the Public Transport segment. The exhibition space occupied by Public Transport this coming September is bigger than two years ago, with exhibitors in the segment also being accommodated in Hall 6.1 as well as Halls 2.1 and 4.1. This year, the products on display will include for the first time buses for local and regional public transport services. New buses can also be viewed outdoors between Halls 2.1 and 4.1.

## InnoTrans means information

The opening event at InnoTrans 2008 will be a veritable international railway

summit. The EU Transport Commissioner will be meeting with top managers from the leading railway systems integrators as well as one of the railway industry's biggest clients worldwide, together with representatives of industry associations and Germany's Transport Minister. Never before have so many high-ranking people participated in the opening event of the leading transport technology fair. Eagerly awaited is the decision-makers' Round Table, focusing as it will be on one of the biggest challenges facing the industry – "Innovative rail technologies and climate change".

The trio comprising trade fair, track displays and convention is an important factor in the success of the InnoTrans concept. The InnoTrans Convention addresses topical issues affecting the industry, with discussions taking place among compact and high-quality panels of experts. At the centre is the Dialog Forum, organised by a group of respected associations, the German Transport Forum, the Association of German Transport Undertakings (VDV), the Association of the European Rail Industry (UNIFE) and the German Railway Industry Association (VDB). The International Tunnel Forum was

very well received in 2006, and this year it is being organised once again by the Research Association for Underground Transportation Facilities (STUVA). Additional Convention highlights include the European and Asian Rail Summit (EARS), hosted by Deutsche Bahn AG and bringing together transport ministers and railway CEOs from countries in Europe and Asia.

The four days from 23rd to 26th September will be an interesting and active period for both exhibitors and visitors. Messe Berlin provides a wide range of services to help utilise the time in the most effective way possible. More information can be found in the service supplement in this issue, or on the internet at [www.innotrans.com](http://www.innotrans.com).

Once again, this year's InnoTrans will close with the traditional public weekend opening of the track and outdoor display areas. On 27th and 28th September interested private visitors will also be able to get close to the latest products from the international railway vehicle industry, while the wide-ranging supporting programme offers something for all the family. The InnoTrans station festival – this year, too, something very special to do at the weekend!

## ■ IMPRINT

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# The Hamburg Flyer – only the ICE could beat it

There are legendary trains and railway lines that will forever be remembered. One such train is the “Hamburg Flyer” – in the 1930s it took what was, for the time, a sensational two hours and 18 minutes to cover the distance between the cities of Berlin and Hamburg, less than half the time needed by contemporary express trains.



It took the Hamburg Flyer just two hours and 18 minutes to cover the distance from Berlin to Hamburg in the 1930s. Photos: DB

During trials in 1932, this performance enabled the “Vt 877a/b” to set a record for the 286 kilometre long line that was only bettered 64 years later – with a time just three minutes shorter – by an ICE high-speed train of Deutsche Bahn. Starting in 1933, the “Hamburg Flyer” was the first long-distance express operated by the Deutsche Reichsbahn Gesellschaft (DRG) and the first streamlined train in regular service. It was the first time in the history of

the railways that a train was put into service aimed at a specific category of traveller. The train had only one class of coach, for which a second-class fare was payable. From the commercial standpoint this was a risky venture, seeing that up until that time an average 95 per cent of Reichsbahn passengers had travelled third class. But the idea of “Hamburg–Berlin–Hamburg in one day” proved to have a successful business case: within weeks, the trains were fully booked.

The “Hamburg Flyer” was the first diesel-electric train to be put into mainline passenger service in Germany. Supplied by the WUMAG company in Görlitz (nowadays part of Bombardier Transportation) in 1932, the two-unit railcar had two Maybach diesel engines each rated at 302 kilowatts (420 horsepower) that propelled the train to a top speed of 160 kilometres (100 miles) an hour. Mounted above the bogies at each end of the train, the engines were coupled to genera-

tors that powered two electric motors in the centre bogie, which supported the two coaches of the articulated trainset in the middle. Almost 42 metres long, the railcar had 98 second-class seats, plus four seats in a service compartment with kitchenette. In subsequent generations of what came to be called the “Hamburg” type, the unusually spartan configuration of the “Flyer” was modified, with the seating arrangement reduced from 3+1 to 2+1 for increased comfort.

The train was equipped with a Knorr air brake and an electromagnetic rail brake that could bring it to a halt from its maximum speed in less than 800 metres.

During the Second World War the rail link was discontinued owing to shortages of diesel fuel, which had to be earmarked primarily for military purposes. After the war, the trains entered service again, both with the newly established Bundesbahn in western Germany and with the Reichsbahn in the GDR. In the Federal Republic, the railcars were taken out of service in 1957 and transferred to the GDR, where they remained in operation inter alia as saloon coaches up until 1983. Part of one train can be seen today in the DB Museum in Nuremberg. After being taken out of revenue service, a Hamburg-type saloon coach built in 1935 continued to be used for special excursions into the 1990s and can be viewed today on track 24 at the Leipzig train station.

Starting in March 2009, it is this very Hamburg–Berlin showcase line that will have to be closed to all mainline traffic. The 90-minute express link is used by over 10,000 passengers daily and was opened as recently as December 2004. On four sections of the line, several tens of thousands of damaged concrete sleepers need replacing. This renewal work will cost the railways several million euros, while for customers the cost will be measured in time: because of the detour via Uelzen and Stendal, the journey time on this route will be at least 30 minutes longer, taking over two hours. The work is due to be completed by June 2009.

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ENVIRONMENTALLY FRIENDLY PUBLIC TRANSPORT SOLUTIONS FROM VOSSLÖH

# Clean and quiet city running



*Specifically with urban buses in mind, Vossloh Kiepe of Düsseldorf, Germany, has developed a production-ready hybrid drive system that will enable public transport operators to reduce their vehicles' fuel consumption and exhaust emissions to a minimum. Measurements have shown that this system can cut energy consumption by up to 35 per cent compared with diesel-powered buses.*



The savings are made possible by an adaptive intelligent energy management system, which stores mechanical braking energy electrically and feeds it back to the drive motor when the vehicle next accelerates. As well as high-performance capacitors – called supercaps – batteries can also be used to store energy. Besides being more economical, the new drive system is easier on the ears of those living close to bus stops, as well as passengers and drivers, because the bus can

drive off completely noiselessly. Fitted to the "LighTram" bi-articulated hybrid bus jointly developed with coachbuilders Carrosserie Hess, the drive system has already proven successful in actual revenue service in a number of cities (see InnoTrans REPORT No. 2/2008). A further environmentally friendly development from Vossloh Kiepe is the production-ready hybrid traction

equipment for trolley buses that combines these vehicles' conventional propulsion system with supercaps. This hybrid drive makes trolley buses, which are already the lowest energy consumers among public transport vehicles, even more efficient to operate. Compared with diesel-powered

vehicles, the energy saved amounts to around 35 per cent, and compared to conventional trolley buses the saving is of the order of 20 per cent. The energy stored in the supercaps is sufficient to propel the bus up to 400 metres while disconnected from the overhead line. Another positive feature for the urban environment is the smaller size of combustion engine needed – for the same level of output, the drive system needs only a 100 kilowatt diesel engine – half the usual engine power of diesel buses. Currently, the Düsseldorf company is fitting the new traction system to 15 trolley buses from Van Hool that are destined to help improve the air quality in Milan starting in early 2009.

**Innovation:** production-ready hybrid drive system with supercaps for trolley buses from Vossloh.

**Detail (inset):** The rail web damping system from Vossloh Fastening Systems effectively reduces noise levels in public transport. Photos and animation: Vossloh

As an effective means of noise reduction, Vossloh Fastening Systems has developed a rail web damping system: glued to the web of the rail, and held in place with a spring clamp, the system is designed to reduce the rolling noise from railway vehicles. The noise-absorbing element is made of polyolefin plastic filled with iron and is maintenance- and corrosion-free. Another product from Vossloh Fastening Systems is System 336, an elastic rail fastening system for slab track that also effectively reduces noise and vibrations. To achieve this, the ribbed plate rests on a highly elastic elastomer, which offers outstanding performance with regard to rail deflection, noise absorption and vibration damping. Designed for ballastless track in concrete or steel, the fastening system is suitable for urban light railways and metro systems.



The System 336 elastic rail fastening helps reduce urban noise levels effectively, as here in Bangkok.

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**+ NEWS +++ NEWS +++ NEWS +**

**Qnamic AG – New IT schema for planning data**

Swiss software developers Qnamic AG have launched a new standardisation schema for the exchange of planning data. Possible application scenarios for the exchange of planning data include, for example, the interlinking of different planning systems; data exchange with client information systems and reservation systems; and data exchange with factory planning, infrastructures and stations. The new schema was presented this spring at the 13th "railML"

conference in Berne. The railML organisation is a development partnership comprised of various research institutions, railway operators, software producers and independent commercial undertakings.

Qnamic AG will also be occupying 160 square metres of exhibition space at this year's InnoTrans (Hall 2.1, Stand 115); the company's motto is "Transparent Data for Far-sighted Management".

WITH TECHNOLOGY FROM INIT

# New ticketing system for the entire trent barton fleet

Private UK bus operator trent barton took the decision to install an efficient fare management system from INIT, a provider of telematics and electronic payment systems for buses and trains headquartered in Karlsruhe, Germany. In a pilot project, the buses running on one of trent barton's lines were equipped with EVENDsmart electronic ticketing machines with on-board computer functionality and PROXmobil customer terminals.



The e-ticketing system, marketed in Nottingham under the "MANGO" brand name, allows passengers to check in/check out using a contactless smartcard. The EVENDsmart ticket printer for conventional paper-ticket sales has an easy-to-use touchscreen and keypad. Passengers with smart-cards can now pay their fare "in passing" simply by waving their card over the proximity reader integrated in the EVENDsmart. The reader will register the customer's card and charge the maximum fare rate for the journey. On leaving the bus passengers check out in the same manner by passing their card over the PROXmobil customer terminal installed by the rear exit of the bus. The smartcard will be automatically credited with the difference between the maximum fare and the fare for the actual journey taken.



The PROXmobil e-ticketing system means enhanced service for all passengers.

Photo: INIT

Bus drivers are pleased not to have to handle so much cash, which speeds up boarding and thus makes it easier for drivers to keep to the timetable. Trent Barton currently operates approximately 60 of its buses within the so-called "star trak" system. This regional passenger information and vehicle control system works with the Intermodal Transport Control System MOBILE-ITCS from INIT and utilises the possibilities offered by its open systems architecture. In the East Midlands, around the cities of Leicester and Nottingham, six transport authorities and five bus operators are

presently integrated into the real-time system. To that end, the buses are equipped with an on-board computer with GPS and WLAN, a radio modem and a radio mobile. With the rollout under way, the EVENDsmart will take over the functions of the current on-board computer.

This will mean that all ticketing and ITCS functions can be easily operated via just a single unit – a significant enhancement for drivers and an efficient solution for the transport

operator. The highly flexible driver terminal is equipped with a graphical 6.5" TFT display, a high-capacity proximity card reader and a high-speed thermo printer for the printing of paper tickets. The integrated WLAN functionality for data exchange between vehicle


and control centre renders additional WLAN components unnecessary. The exact position of the vehicle is determined via a GPS receiver, as well as an odometer and door contact. Following the successful pilot on its Rainbow 4 bus line, trent barton has now decided to equip its entire fleet



The EVENDsmart ticket printer in operation.

of 254 vehicles with EVENDsmart ticket printers and PROXmobil terminals. As a result, from end-2008 at the latest all trent barton customers will be able to enjoy the advantages of this e-ticketing system.

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### + NEWS +++ NEWS +++ NEWS +

#### Subsidies for e-ticketing system development

The European Commission authorised in early May a state aid measure planned by Germany aimed at supporting the development of an electronic fare management system for public transport, the so-called "e-ticketing system".

The approved state aid amounts to approximately 9.75 million euros and will be granted between 2007 and 2009. The e-ticketing system should attract more customers to use public transport services, and should

facilitate the use of such services by people with restricted mobility. Development of the system requires industrial research and experimental development work, which will be aided through the approved subsidies.

The Commission concluded that the aid will have an incentive effect, in that it will encourage the beneficiaries to devote more effort to research and development projects than they would otherwise.

■ OPPORTUNITIES FOR OPTIMISATION WITH THE CAN-BUS

# An intelligent system helps save fuel

*With a view to comparing and optimising fuel consumption within a transport operator's fleet, Austrian company Zelisko has developed a system solution that is currently undergoing trials.*

The system aims at acquiring data on the fuel consumption of all vehicles in the fleet as a basis for assigning deviations from the "norm" to individual drivers. To this end, the information available in the Controller Area Network Bus (CAN-Bus) is evaluated in combination with the data from the Zelisko ticket printer.

**Perfectly matched technology calculates the necessary data**

When a driver logs on to the Zelisko ticket printer, the device registers the driver's personnel number, the date and time, the GPS position, and the bus route and departure, and calculates the kilometres travelled. To this data is added CAN-Bus data on the contents of the fuel tank. This information has to be made available on

the vehicle's CAN-Bus. For the system to work, each vehicle needs to have a Zelisko ticket printer and a ComBox CAN IBIS. The communication between ComBox and the existing Zelisko ticket printer is realised via a defined IBIS protocol. The vehicle-specific data are stored in the ticket printer, linked to the driver data and made available for further processing.

All the data obtained are stored in an additional dataset contained in the driver module. In the software module "journey cost analysis", the fuel consumption per 100 kilometres for each driver can be listed, the fuel consumption data are compared with those for other drivers on the same route, and any deviations are displayed in visual form. In this way it is



**Zelisko provides overall turn-key solutions for traffic management systems.**

possible to identify those drivers who are using excessive amounts of fuel, as well as vehicles with uneconomical performance characteristics (in terms of fuel consumption). Such vehicles can then be examined separately in the workshop, and the

drivers concerned can receive specific training with a view to encouraging them to drive in the most economical manner.

This new application is currently being piloted with an Austrian customer.

+++ NEWS +++

## Record-breaking order for Siemens from Belgium

Siemens Mobility Division has received an order from the Belgian rail operator Société Nationale de Chemins de Fer Belge (SNCB) to supply 305 multiple-unit trains to be used in Belgium's regional rail service. The contract signed just recently is worth 1.425 billion euros and marks the biggest order Siemens has ever received in the rolling stock sector.



**From 2011, the Desiro ML will also be running on Belgian track. Photo: Siemens**

The Desiro ML trains are scheduled for delivery in the period from 2011 to 2016. For Belgium, according to Siemens, the trains will be three-unit EMUs with a power output of 2 megawatts, and overhead line voltage of 3 kV and 3 kV/25 kV. The environmentally friendly Desiro ML can accommodate a total of 280 passengers and has a top speed of 160 km/h. The first trains will be manufactured at the Siemens plant in Krefeld-Uerdinger in Germany beginning in 2009.

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■ PUBLIC TRANSPORT FORUM

## Panel discussion has become a tradition



This year will be no less than the sixth time that the Public Transport Forum will be taking place – the longest-established event accompanying the InnoTrans transport technology trade fair. Sponsored by ETC Transport Consultants und PBV Planungsbüro für Verkehr, the Forum was organised for the first time ten years ago, and with over 150 participants at the last count it has become an important rendezvous for experts in the public transport sector. The 2008 Forum will be focusing on the long-term outlook for public transport. After many years of commercial and compe-

titive challenges, the time is ripe for a reorientation of the discussion back towards future requirements on the public transport system and to identify solutions. The sixth Public Transport Forum aims at providing a suitable platform for such a refocusing. On 25th September, the participation of eminent experts from a wide range of domains will ensure a highly informative debate. The programme and registration documentation can be found on the internet at [www.pbv-berlin.de](http://www.pbv-berlin.de).

Photo: Messe Berlin

## Bus driver training benefits the environment

By giving their drivers special training, bus companies can reduce their fuel costs by as much as ten per cent – this is the outcome of the training courses that are run for bus companies by DB Training, the qualification and consultancy provider of Deutsche Bahn AG. In a recent exercise, some 650 bus drivers from regional operator Regionalverkehr Kurhessen (RKH) received training in "economical driving". In the course, bus manufacturer Evobus, which provides the training in conjunction with DB Training, shows bus drivers how they can reduce fuel consumption as well as the wear and tear on the vehicle by driving in an economical manner and anticipating what is going to happen on the road ahead. Starting in September, professional drivers in Germany are obliged to undergo 35 hours of additional training within a period of five years. Alongside the "economical driving" module, DB Training offers another four further training modules covering all topics required under the Law concerning professional driver qualification. Further information can be found at [www.db-training.de/omnibusfahrer](http://www.db-training.de/omnibusfahrer).

■ SENSORIO OFFERS ENHANCED SAFETY THROUGH INFRARED TECHNOLOGY

# Automatic train doors: barrier free, convenient and safe

*For some years now, the aspects of "accessibility" and "convenience" as well as physical safety have taken on ever greater importance in the public transport sector. In France, Germany and other European countries, improved access conditions for persons with disabilities have also been a major consideration for train operators for some time now.*

Automatic door openers with contact-free sensors instead of handles or push-buttons are not only convenient for those who frequently travel with a lot of luggage, but also make for an overall barrier-free environment on board the train. Moreover, sensor-controlled train doors increase the level of safety for passengers. These systems can prevent passengers from being hit by a closing door while they are standing in the opening. Such contact-free sensors from Sensorio (a division of BEA, Belgium) have been used in

Germany's ICE train fleet since as far back as the early 1990s. According to Sensorio, the company's current generation of train sensors offers even greater convenience, safety and flexibility thanks to the experience that the firm has gained with the production of access and safety sensors for all types of automatic doors. The RS-15 infrared sensor designed for inside doors has a detection grid that can be adjusted precisely to the door environment, with the sensing fields being customised for every type of door system: corri-

dors, platforms or communication gangways between coaches. The RS-15 provides maximum flexibility for all types of train and every area of application, and is also in use in China in the CRH3 HST, in the RAILJET in Austria, in the AEROEXPRESS in Russia and in the Zurich rail rapid transit system.

**New solutions for exterior doors**

Physical safety is also an important consideration in the area of a train's exterior doors. To date, however, a system that meets these requirements involves the passenger actually touching it before being able to pass through the door opening. In some cases, this can be painful or even dangerous. Given the ever-increasing expectations from such systems, a contact-free sensor that opens the door without the passenger first having



**Infrared technology from Sensorio ensures safety and convenience for all passengers.**  
Photo: Sensorio

to push a button would be highly desirable. Recent reports in the German media about various accidents in connection with train doors have served to further increase the level of interest in such contact-free sensors. Evidently, infrared radiation on its own is no longer sufficient, and there is a need for systems that can

cover the entire door area. During InnoTrans 2008, Sensorio will be presenting a number of sensors that can be utilised in the area of exterior train doors. Based on infrared and laser technologies, these sensors are aimed at enhancing the safety level of this part of the train.

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■ HIGH-GRADE TEXTILES  
BESPEAK DESIGN

## The fabric that makes the railways



**Ordeal by fire: Lantal tests its fabrics in its in-house railway laboratory.**  
Photo: Lantal

At this year's InnoTrans, in Hall 1.1/Stand No. 219, Swiss textiles manufacturer Lantal will be showcasing its design competence for unique interiors and providing information on the wide-ranging test facilities available at its new in-house railway laboratory.

As specialists for planning and designing all-in textile interiors for railways, trams and buses, Lantal will be showing new design possibilities with its hard-wearing seat cover fabrics, velours and carpeting. Materials, patterns and colours are at the core of Lantal's comprehensive solutions for passenger transport: they enhance passengers' sense of well-being and also give a transport operator's brand its very own look and feel. With a broad spectrum of additional services such as third-party lab tests, fully made-up textiles and digital visualisation of design concepts, Lantal is a dependable partner for total solutions. Lantal's new in-house railway laboratory in Switzerland, which has

extended testing facilities, has been recognised by Germany's Federal Railway Authority since September 2005 and can carry out tests on the draft standard DIN 5510-2: 2007. With a view to the expected new EN 45545-2 flammability tests, since February 2008 Lantal has been offering additional test possibilities, including toxicity measurements, a Cone Calorimeter Test in accordance with ISO 5660-1, Flooring Radiant Panel Test EN ISO 9293-1 and the Seat Test 45545-2 Annex B. The broad range of testing facilities in Lantal's extended lab is also accessible to third parties.



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## OFFICIAL LAUNCH IN SAXONY-ANHALT

# Work gets under way on the Finne tunnel

Work has now commenced in Herregosserstedt (Saxony-Anhalt) on driving the seven kilometre long Finne tunnel for the new Erfurt – Halle/Leipzig rail link. In the presence of Wolfgang Tiefensee, Federal Minister of Transport, Building and Urban Affairs, Wolfgang Böhmer, Minister-President of Saxony-Anhalt, and Stefan Garber, Member of the Board of Management for Infrastructure and Services of Deutsche Bahn AG, the miners marked the traditional start of tunnelling.

Along with a traditional ceremony and an ecumenical service, the occasion saw the inauguration of Brigitte Klein, the wife of Saxony-Anhalt's Minister-President, as patron of the tunnel. In accordance with the ancient belief, as representative of St. Barbara, the patron saint of miners, she will watch over progress through the mountain to ensure it is trouble-free.

The twin-tube tunnel, being driven by two tunnel boring machines (TBMs) from southern German manufacturer Herrenknecht, is part of the German Unity Transport Project No. 8, comprising the upgrading and new construction of the railway line Nuremberg–Erfurt–Leipzig/Halle–Berlin railway line. Together with the already completed new and upgraded

Munich–Nuremberg line, this stretch is aimed at cutting the travelling time from Munich to Berlin to four hours. It will also mean a significant performance enhancement to the railway connections between major German and European population centres, including in the Leipzig/Halle area. The overall project is scheduled for completion in 2017.

### An eleven metre diameter hole in the ground

The start of driving in the Finne tunnel marks the first milestone on this major construction site following more than one year of preparatory work. Before boring could commence, it was necessary inter alia to



The TBM in the midst of the huge construction site.



Stefan Garber, Member of the Board of Management for Infrastructure and Services of DB AG, and Transport Minister Wolfgang Tiefensee at the launch ceremony in Herregosserstedt.



Crammed full of technology – a view of the front part of the Herrenknecht TBM.




View of the TBM and the railway tracks used for removal of soil and rock. Photos: DB AG/Ralf Kranert

make the initial cut and put a light railway system in place. The first 86 metre long TBM with an eleven metre diameter shield commenced operation immediately after being assembled in the spring. On-site pro-

duction of the 48,000 tubings, the reinforced concrete segments of which the tunnel linings are made, has been in progress since March. Between now and 2011, some 250 construction workers will be em-

ployed directly on site. Deutsche Bahn has set up an information centre at the construction site in Herregosserstedt, where the public can experience the tunnelling work at first hand.

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It manufactures diesel shunters of various modifications and wide range of trackside equipment, and carries out the maintenance and repair of rolling stock.  
Ural Diesel Engine Plant, Limited Liability Company, Yekaterinburg, Sverdlovsk region.  
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## + NEWS +++ NEWS +++ NEWS +

### VE.R.A. – Hamburg's TBM has got a name

Hamburg's citizens took part in large numbers in the vote to decide on a name for the tunnel boring machine (TBM) driving the new tunnel for the U4 metro line.



The result was clear-cut: with just under 60 per cent of the votes cast, VERA („Von der Elbe Richtung Alster“ – “from the Elbe towards the Alster”) beat HEDI („Hafen Erreicht Die Innenstadt“ – “the Port reaches the City Centre”) and EVA („Elbe via Alster”). A total of over 1,200 different suggestions for naming the U4 TBM had been submitted to Hamburger Hochbahn AG. From among the suggestions received, three top favourites were selected by a jury comprising the Senator for Industry and Labour, Axel Gedaschko, Hochbahn board member Ulrich Sieg

and the Hamburg editor of the Bild-Zeitung, Gerald Selch. A public online and telephone poll was then held to determine the winner.

The official launching ceremony at the starting shaft of the U4 line, the location of the future Überseequartier halt, was held in May, after which driving commenced on the first tunnel in the direction of the city centre. Around 40 weeks later, in the spring of 2009, VERA will reach the end shaft by the Jungfernstieg pier for the first time. Here the cutter head will be raised and transported back to the HafenCity, while the shield TBM will travel back through the tunnel. Construction of the second tunnel tube is scheduled for the spring of 2009, and the U4 metro line is due to enter service in late 2011.

MODERN TUNNEL RENOVATION

# Brilliant idea: tunnel inside a tunnel

*It can be done: widen and modernise an old railway tunnel and run trains through it at the same time.*

*Deutsche Bahn (DB) has applied for a patent on its invention – a novel tunnelling method.*

Together with his colleagues, Matthias Breidenstein, head of the TUBA (Tunnelling Projects) division for the states of Hesse and Rhineland-Palatinate, has devised an absolutely unique method of renovating old railway tunnels in the most cost-effective way possible. In the meantime, DB ProjektBau, a wholly-owned subsidiary of Deutsche Bahn, has applied for a patent on this innovation. "Drawings are the engineer's language," said his colleague Stefan Simon. "So back in late 2004 we put our heads together after hours and sketched out our initial ideas." Ultimately, they came up with a solution to a by no means trivial problem affecting the railways and their passengers: in the near future, hundreds of tunnels dating from the 19th century in Germany's uplands and alpine regions will require full-scale renovation, inter alia to bring them into line with today's higher safety standards. "That's why we developed the 'tunnel-in-a-tunnel' principle for

double-track lines," Mr Breidenstein explained. In so doing, he and his colleagues refuted a kind of fundamental law of tunnelling, according to which you cannot carry out extensive rebuilding work and maintain scheduled rail services at the same time. Previously, tunnels had to be closed to traffic for the duration of the renovation work, with major inconveniences for passengers. The other option was for the construction workers to be on site only during the short nighttime break in service, which was extremely complicated and made tunnelling work a lot more expensive.

**A new benchmark for modernisation work**

"The new tunnel-in-a-tunnel principle enables us to carry out the work while the trains are running," Stefan Simon explained. This is how it works: space is created in the tunnel tube by first removing the two main-line tracks and laying a provisional track in the



The machine developed for the tunnel-in-a-tunnel principle was also used for the renovation of the Jähröder Tunnel in Rhineland-Palatinate. Photos: DB ProjektBau GmbH/Matthias Oettel

middle. This makes room for a novel type of tunnelling machine that conceals the provisional tunnel track in a separate steel tunnel tube over a length of 22 metres. This mobile housing acts at the same time as the working platform from which demolition, drilling and blasting operations are carried out while railway traffic operates on the single track below. That was all very well in theory, but now the tunnelling engineers have demonstrated that their idea actually works in practice. Another colleague involved in the project added: "We were all on tenterhooks before the first train roared through the Mausenmühle tunnel below us." The TEM 8400 Tunnel Extension Machine developed by GTA Maschinensysteme GmbH in Hammingen, Germany, employed for the first time on the Nahe valley line in the hil-



Using this new method, work on tunnels can now be carried out with trains running.

ly Hunsrück region, passed all tests with flying colours, and the new "old" tunnel was finished by the beginning of this year. This brainwave of DB engineers Breidenstein and Simon sets a new benchmark for the modernisation of historic railway tunnels.

Looking ahead, TUBA head Mr Breidenstein said: "Over the next few years, we'll also be using this method on the Lahn valley line, and our aim is to further develop the technology so that we can also use it for modernising tunnels on electrified lines."

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**Breakthrough in the City Tunnel in Malmö**

Towards the end of April this year, the second TBM, called "Katrin", reached daylight again at the Malmö Central station. This means that both tubes of the tunnel have now been bored: around a month before, sister TBM "Anna" completed her work. TBM "Katrin" started in early February 2007 and took around 14 months to systematically bore the 4.6 kilometre long tunnel.

The City Tunnel in Malmö, being built at a cost of some 1.01 billion euros, is scheduled to enter service in 2011. It will provide a much better connection from Malmö Central to the Öresund bridge to and from Copenhagen. Construction started on 8th March 2005. The overall length of the railway project is 17 kilometres, of which 6 kilometres of tunnel.

**Brenner Base Tunnel: first ground is broken**

In mid-May, the first ground was broken on the Brenner Base Tunnel, a project that has been planned for some decades now. This marks the start of official work on the tunnel, even though this was only due to get under way in 2010. The 53 kilometre long tunnel will link Innsbruck in Austria with Franzensfeste in the South Tyrol, Italy. Completion is scheduled for 2020. The railway tunnel is designed to relieve the roads of goods traffic: the aim is that the 75 million tonnes of freight currently hauled over the Alps by lorry should be transported by rail. In 2006, the estimated cost of the project was increased from 4.5 billion euros to 6 billion, although experts expect the costs to rise further to 8 billion euros. Furthermore, the cost of additional infrastructure upgrades and railway links is estimated at between 8 and 9 billion euros. At the moment, a question mark hangs



over the funding for the entire project. Planning and implementation of the Brenner tunnel is being undertaken by Brenner Basis Tunnelgesellschaft (BBT SE), in which Italy (via "Tunnel Ferroviario del Brennero") has a 50 per cent share, and Austria and the Tyrol 25 per cent each. For the time being, the European Union has made funding totalling 800 million euros available. However, financing is not assured on either the Austrian or the Italian side, and there are no arrangements in place for covering cost overruns. As a result, there is a risk of the expenditure to date going to waste if the project were to be abandoned.

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RAILWAY TECHNOLOGY'S ENVIRONMENTAL ADVANTAGE - INTERVIEW WITH THE CEO OF THE VDB

# "Indisputably, rail is the most environmentally friendly transport mode"



A major topic at year's InnoTrans will be energy efficiency, as reflected amongst other things in the range of products and services offered by many of the firms exhibiting at the trade show. In an exclusive interview for InnoTrans-REPORT, our editors spoke to Prof. Dr. Ronald Pörner, Chief Executive Officer of the German Association of the Railway Industry (Verband der Bahnindustrie in Deutschland - VDB), who explained what exactly the railways can contribute towards combating climate change.

**Professor Pörner, how far is it true to say that the issue of energy is a factor driving innovation in the railway industry?**

"Energy efficiency" is one of the issues that has the highest priority for the railway industry. There are two good reasons for this. Firstly, rail is indisputably the most environmentally friendly transport mode. But the industry is not leaving it at that: our objective is to further reduce emission levels from railway traffic by constantly optimising technologies – and thereby to make a lasting contribution towards protecting the climate and the environment.

**And secondly?**

Secondly, energy consumption has a direct impact on the operating costs of railway companies and is therefore also an economic factor. By using energy-efficient and low-consumption systems, we can lower avoidable costs, enhance companies' competitiveness and markedly reduce the impact on the climate and the environment.

**How much emphasis is placed on energy efficiency in research and development activities?**

Today, all major railway systems manufacturers have put a huge amount of research effort into ways of maximising performance per unit of energy utilised in rail transport. This testifies to the high importance that railway technology manufacturers attach to energy efficiency, both among the major systems suppliers and among the large numbers of medium-sized companies in the industry.

**Can you give us any examples?**

As key technological concepts one may mention modern systems for energy storage or energy feedback, for example for reutilising braking energy. Modern locomotives and trainsets already come equipped with all these types of energy-saving systems – one might almost say "as standard".

**Why is rail transport good for the climate?**

No other form of transport produces such low emissions for a high level of performance as locomotives and trains. Let's take just one example from rail freight: if you transport just a thousand tonnes of freight from Rotterdam to Genoa by rail, you save around

seventy tonnes of CO<sub>2</sub> emissions as compared to road transport. And at the same time, you are emitting much lower levels of other major pollutants such as nitrogen oxides and sulphur dioxides. Viewed in this light, it's not surprising that rail traffic in Germany accounts for as little as one per cent of overall greenhouse gas emis-

**What is the potential for further savings in modern train and operating technologies?**

Recently, an electric railcar was developed for the Oslo underground that, through systematic application of lightweight construction technology, consumes up to 30 per cent less energy than its predecessor. Since the energy utilised for the most part is still needed for motion, reducing the weight of the vehicles directly impacts energy consumption. For example, by using carbon fibre materials for the nose, the engineers achieved a 15 per cent weight reduction. Interior fittings made of renewable raw materials make for a further 20 per cent weight saving. Regenerative brakes cover 46 per cent of energy consumption. At the same time, the train is 94.7

per cent recyclable. As this list shows, the list of possibilities for optimisation goes on. But it does mean on-going investment in research and development.

**This topic is doubtless going to be a focal point on many exhibitors' stands at InnoTrans 2008?**

All of the railway technology manufacturers that have developed ways of utilising energy more efficiently will naturally be taking the opportunity of showcasing them at InnoTrans. Looking ahead, energy efficiency is going to be the major topic in all areas of our lives. For the freight and passenger transport sector, the railway industry has a clear lead thanks to its environmental advantage. Visitors to InnoTrans need only look around to see that this is true.

» Energy efficiency is going to be the major topic in all areas of our lives.

Prof. Dr. Ronald Pörner

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ENVIRONMENTALLY-FRIENDLY RAIL SOLUTIONS

# Keeping to schedule and saving fuel with GE

**GE Transportation will be presenting a number of innovations at this year's InnoTrans on Stand 101 in Hall 5.2, as well as on track G9/2 in the outdoor display area.**

Among the products on show will be the new, fuel-saving PowerHaul locomotive engine – a 16-cylinder diesel designed to power the diesel-electric PowerHaul series. Lorenzo Simonelli, President and CEO of GE Transportation, will be presenting the PowerHaul engine and loco series at GE's press conference on 24th September starting at 10 a.m. In addition, GE Transportation will be presenting its new Trip Optimizer. This new GE product automatically controls the train's throttle setting so as to keep it on schedule and at the same time save fuel. The Trip Optimizer software generates an optimal route profile by "learning" the characteristics of each train and by factoring in parameters such as train length and weight, track and weather conditions, and current performance in order to calculate the most efficient way of running.

To date, this system has already been demonstrated to achieve fuel savings of 10 per cent and a reduction in emissions as compared to manual control of the throttle setting.



The new fuel-saving PowerHaul engine is debuting at this year's InnoTrans.

Visitors can try their hand at a fuel-saving driving style on the Trip Optimizer simulator.

Photos: General Electric

A simulator of the new system can be seen on GE Transportation's stand at the trade show.



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Designing the future – EC Engineering

EC Engineering (ECE) is a research and development company headquartered in Poland, and is part of the Energo-control Group. A core business is the development of technical documentation for the transportation sector. Behind each set of documentation lies an initial idea which the designers build on to develop a graphical vehicle concept. Based on technical rules and with the aid of design and simulation software (CAD/CAE), a 3D model is created. In addition, a range of analyses is carried out of factors such as

vehicle motion, dynamics, structure and material fatigue. Once the optimisation process has been completed, ECE draws up 2D documentation, performs controls and undertakes test measurements, and the Polish firm also works with clients during the subsequent approval procedure for the finished vehicle. Some of the results of EC Engineering's work can be found on the stands of a number of European railway technology firms at this year's InnoTrans.

[www.ec-engineering.pl](http://www.ec-engineering.pl)

The G 6 from Vossloh – robust, versatile and powerful

At this year's InnoTrans, Vossloh Locomotives of Kiel in Germany will be showing a first model from its new range of diesel-hydraulic centre-cab locomotives – the three-axle G 6 shunting and works locomotive – in the outdoor display area F4/12. The new loco family meets all the EU standards on exhaust emissions, noise protection and crash performance that are to enter into force between 2008 and 2012. The heart of the 10.35 metre long G 6 is the Cummins QSK23 engine (optionally the C27 engine from Caterpillar can be fitted). With the proven L3r4 turbo reversing transmission from Voith, the power train guarantees an output of around 650 kilowatts. Even under extreme operating conditions, as for example in steelworks, the G 6 brings its full tractive power to bear. Depending on customer requirements, the maximum speed is either 35, 60 or



80 kilometres per hour. To keep life cycle costs to a minimum, there is a new design of running gear with axle displacement, aimed at reducing the abrasion and wear that would otherwise arise when running at high speeds and tight curves with a 50 metre radius. The robust frame contributes to the optimised running, and according to the manufacturer its compressive strength of 4,600 kN is over twice the figure reached by other works locomotives.

Anzeige

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Connector solutions for the railway sector


AB Connectors Ltd, part of the TT electronics plc group and headquartered in the UK, will be presenting its range of inter-connect systems, cable assemblies and connectors for



railcars at this year's InnoTrans and will be showing connector systems for railways that enable fast data transmission while at the same time being resistant to vibrations and extreme weather conditions as well as standing up to frequent coupling and uncoupling. These special connectors were developed to ensure smooth transmission of control, signalling and communication data between coaches. The product types on display were employed in the UK for Metronet Rail

projects such as the modernisation of the Victoria Line and sub-surface lines (SSL). Harvey Preston, Managing Director of AB Connectors, explains: "Our connectors are designed to cope with the difficult conditions in rail transportation and are resistant to vibrations, temperature fluctuations and corrosion due to weather. In the past, connectors were a weak point in terms of train reliability, with frequent failures negatively impacting performance and profitability. However, AB Connectors has improved the design of connectors for the railway industry, reversing the trend and leading to a more reliable service for passengers and lower costs for operators."

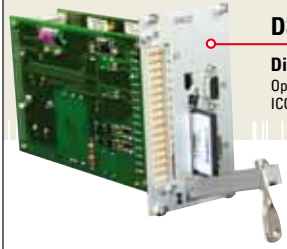




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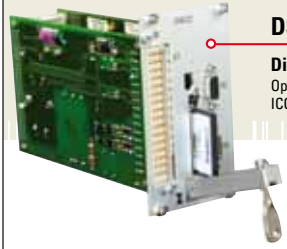
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■ BOMBARDIER WORLD PREMIERES AT INNOTRANS 2008

# “The Climate is Right for Trains”

*This is the motto under which two new vehicles from Bombardier Transportation will be making their world premiere appearance at InnoTrans 2008 – the Talent 2 regional train, and the Flexity Berlin tram for Germany’s capital.*

On stand 201 in Hall 2.2, Bombardier Transportation will be presenting its complete product portfolio, including numerous new solutions aimed at reducing emissions and energy consumption. Amongst other things, visitors will be able to take in new solutions for urban, regional, rapid transit and inter-city rail services, as well as in the area of high-speed train technology, and propulsion and control systems. An interactive presentation will demonstrate environmentally-friendly train control via the “Drive Style Manager EBI Drive”. In the outdoor display on tracks 5, 6, 7 and 8, alongside

its two world premieres – the Talent 2 ‘quick change artist’ for commuter and regional rail services (see the article in InnoTrans-REPORT No. 2/2008) and the Flexity Berlin low-floor trams – Bombardier Transportation will be presenting a total of six new trains, including the Hybrid AGC (Autorail Grande Capacité) high-capacity railcar and two Traxx locomotives. The manufacturer says that the Hybrid AGC, the first high-capacity dual-mode train, is fitted with a unique dual-



The Talent 2 (left) and the Flexity Berlin tram (above) are just two of the new products that Bombardier will be showing to visitors at InnoTrans.

Photo and animation: Bombardier

voltage technology, and an innovative combination of electric and diesel propulsion: on electrified lines, the Hybrid

AGC uses electric traction, and on non-electrified lines it is powered by the diesel engine. The result is a marked reduction in noise and pollution. The powerful Traxx locomotive family for freight and passenger services will be on show at InnoTrans 2008 in both diesel and multisystem versions with new technologies for eco-friendly operation and innovative features for pan-European cross-border operation.

the outdoor display area, interested trade visitors will be able to attend a number of different seminars. Amongst others, R&D departments will be presenting their latest ideas and projects. There will also be a chance to hear from customers, who will be reporting at first hand on their experiences with Bombardier products in day-to-day use.

Since numbers are limited, those interested are recommended to sign up for these seminars in good time. The full list of topics and a registration form are available online at: [www.transportation.bombardier.com](http://www.transportation.bombardier.com).

**A lot on offer for trade fair visitors**

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\*Compared to previous GE locomotives.

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GE imagination at work

**+ NEWS +++ NEWS +++ NEWS +**

**Coradia Nordic adapts to Sweden's extreme winter weather conditions**

Östgotatrafiken, the public transport operator in southern Sweden's Östergötland region, signed an order with Alstom to supply five Coradia Nordic regional trains. The order is worth a total of about 27.5 million euros, and delivery of the trains is scheduled for the second half of 2010. Coradia Nordic for Östgotatrafiken is a four-car articulated EMU (Electric Multiple Unit) especially configured for harsh winter conditions. The trains will be designed and assembled at the Alstom site in Salzgitter, Germany, while the ONIX traction system will be manufactured in Tarbes, France. By purchasing the new trains, Östgotatrafiken will improve and update its regional train fleet. The new trains will

mean increased comfort for passengers, with improved accessibility thanks to lower floors with a no-step design. What's more, Coradia Nordic trains are up to 95 per cent recyclable, in line with Alstom's environmental policy. The first batch of trains for Greater Stockholm have been service since August 2005. In total, Alstom says it will supply 71 trains to SL (the Stockholm public transport operator). The second order of 49 regional trains for Skånetrafiken was signed in December 2006. With this order, Alstom says it has now sold 206 Coradia Lirex trainsets in Europe since receiving its first order in 2002.

■ HIGH SPEED PLACES HEAVY DEMANDS ON TRAINS AND TRACK

# High-tech for high speed

*“High speed” is an elastic term. For some, high speed starts from as low as 200 kilometres per hour.*

*For others – the majority view – one can only talk of high speed when the dial registers 250 kilometres per hour and more. Modern trains such as the ICE, the Velaro or the TGV have been designed and approved to run at speeds of over 300 kilometres per hour since as far back as the late 1980s.*

What are also crucial factors in train speeds are the track and the safety systems. From a speed of 350 kilometres per hour, the Velaro brakes to a standstill in a distance of 4.5 kilometres. Within such corridors, trains naturally have to be kept at the requisite safe distance – nowadays this is done, for example, using the modern ETCS train control system. It stands to reason that, on lines with mixed traffic including regional and goods trains, high-speed trains often cannot be operated so fast, as the gaps could not be maintained. For high-speed trains, track and overhead lines also need to be kept in absolutely perfect condition, as fast running places heavy demands on the track as well as the train. One thing this entails is highest-quality materials: the pantograph wearing strips that make the contact between the power grid and the train are made of graphite only 30 millimetres thick and are designed to last for 100,000 kilometres.

So that they wear down evenly, the contact wires are mounted in a zigzag pattern. The surface with which each touches the other is no bigger than a postage stamp, but it transmits power at the rate of 10 megawatts every millisecond. The contact wires are made of separate lengths of up to 1.5 kilometres and weighing up to 1.5 tonnes and more; their service life extends over more than 30 years.

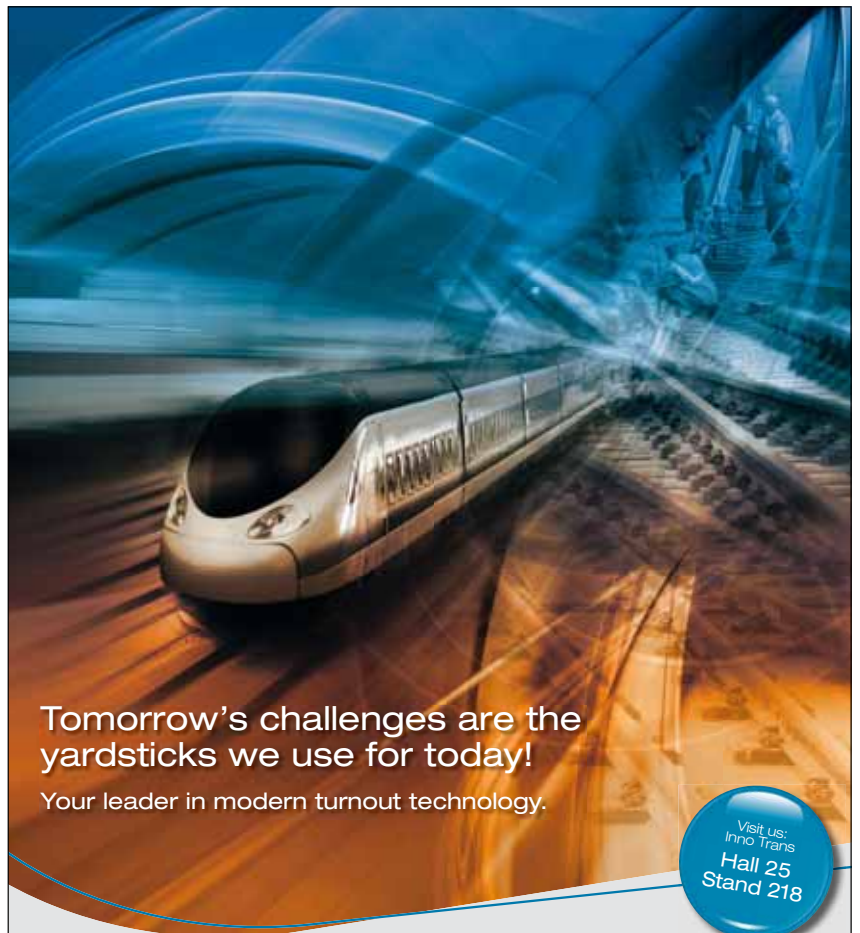
Routine servicing of a train takes between four and 24 hours. That is actually not very long when one considers how many tiny details have to be checked: a Velaro, for example, has 200 kilometres of cabling, and at the other end of the scale 320 coat hooks, which also always need to be serviceable. From the first weld to the time it leaves the factory, it takes around 12 months to build a whole train. A single carriage will then weigh around 40 tonnes, with the chassis alone accounting for between 15 and 19 tonnes.



High-speed trains such as the ICE place heavy demands on the track.

Photo: DB AG

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Lucchini Sidermeccanica Group keeps it quiet



For the railway industry, Lucchini Sidermeccanica, an Italian manufacturer headquartered in Brescia with worldwide operations, produces wheels, axles and wheelsets. At this year's InnoTrans, Lucchini can be found in Hall 21 on Stand 118. The company will be presenting its high-speed wheelset with "Syope" low-noise wheels, as supplied to Siemens for its high-speed Velaro train. In addition, the firm invites all interested parties to attend a conference on 24th September at 15:00 in Hall 6.3.

Railway products are one of Lucchini's core businesses, but the company also designs and manufactures steel castings and forgings for all indus-

tries, such as power generation, petroleum extraction and by-products, and offshore platforms. The main innovation in terms of new investments is a new rolling mill for the production of high-quality rolled wheels especially for use on high-speed trains. Production is expected to commence by the end of 2009 with a maximum manufacturing capacity of 240,000 wheels per year. The manufacturing process in the new plant will be completely automated in order to guarantee the highest possible standards in quality and work safety. In addition, Lucchini has taken on the design and production of low-noise wheels for a variety of applications in the railway and public transit sectors.

## +++ NEWS +++

**New TGV line between  
Tangier and Marrakech**

During the state visit of French President Nicolas Sarkozy to Morocco, contracts for French firms to a total value of two billion euros were signed. The biggest order was for the construction of a TGV high-speed railway line linking the cities of Tangier and Marrakech. Funding is to be provided by France's Alstom Group, rail operator SNCF and infrastructure manager RFF. The first section of the line, between Tangier and Kenitra, is expected to be operational by 2013. This will shorten the journey time between Tangier and Casablanca by three hours. In connection with this, Morocco is buying 20 locomotives from France for a total of 200 million euros, and will build a power station near the Algerian border.

**Russian railways facing  
complete overhaul**

As reported by Eurailpress, Russian Prime Minister Vladimir Putin has approved a railway development programme that will enable Russia's railway operator RZD to make investments totalling in the order of 380 billion euros between now and 2030. Under the programme, the next 22 years will see the construction of 20,000 kilometres of new railway costing 150 billion euros, 1,500 kilometres of which will be built for high-speed trains. The rolling stock procurement list includes 3,000 locomotives, 900,000 goods wagons and 29,500 passenger coaches. Over the investment horizon, the volume of freight transported by RZD is set to increase by 70 per cent.

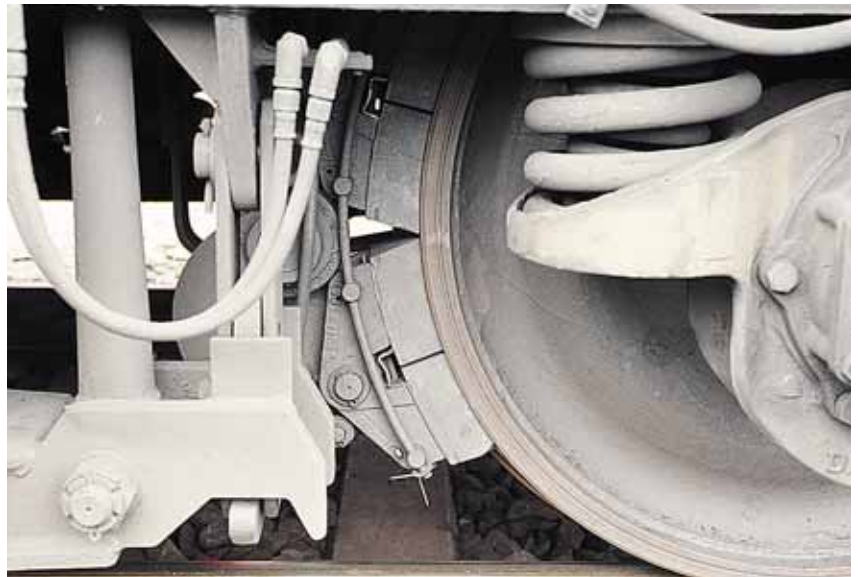
## RESEARCH PROJECT IS LAUNCHED

## The "quiet train on real track" is picking up speed

*According to conservative estimates, rail freight traffic is set to double in volume between now and the year 2020 to a total of around 190 billion tonne-kilometres per year. In densely populated areas, in particular, noise emissions from rail freight traffic pose an increasingly serious problem.*

The railway industry is taking the related nuisance impact on the people affected very seriously. Accordingly, together with Deutsche Bahn and research institutions, and supported by the German Federal Ministry of the Economy and Technology, it has launched a research project entitled "Quiet train on real track" (in German "Leiser Zug aufrealem Gleis", or LZarG for short).

As a complement or alternative to other measures such as sound insulation walls and the introduction of the well-known K-type brake block, the objective of the LZarG project is to restrict or prevent noise directly at source. The intention is to develop commercially viable solutions within three years which can be integrated easily into the railway system and thus contribute to the aimed-for halving of railway traffic noise by the year 2020. The investigations encompass the contact between wheel and rail, wheel vibrations, sound radiation and the acoustic optimisation of the superstructure. "For the German Federal Ministry of the Economy and Technology, the project is an important addition to the noise reduction programme of the Federal Government, under which sound-protection measures for particularly



The so-called whispering brake, the K-block, is already serving to reduce rolling noise. Photo: DB AG

noisy locations on the existing railway lines have been financed since as far back as 1999, with funding currently running at 100 million euros per year," says Dagmar Wöhrl, Parliamentary State Secretary at the German Federal Ministry of the Economy and Technology. "The project is aimed at

noise abatement everywhere it is generated, where steel meets steel and moves together, for instance at wheel and rail," adds VDB Managing Director Axel Schuppe. Thus the project is complementing the efforts of DB AG to equip the goods wagon fleet with a compound brake pad. This so-

called "whispering brake" reduces the rolling noise of goods wagons in conjunction with smooth rails by one-half – this is a measured 10 dB(A). Over and above the use of the whispering brake, the LZarG project would reduce noise emissions by a further 4 to 5 dB(A).

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**BAM RAIL AND RAIL.ONE SIGN COOPERATION AGREEMENT**

# Advanced railway track systems for the Netherlands

*Dutch company BAM Rail bv and Germany's RAIL.ONE Group will pool their competence in the field of railway track technology, and will thereby help promote advanced ballastless railway infrastructure for heavy rail in the Netherlands. Towards this objective, the Director of Projects for BAM Rail, Bart Oudmaijer, and the Chief Operating Officer of RAIL.ONE, Richard Ziegler, signed a cooperation agreement at the trade fair UIC Highspeed 2008 in Amsterdam.*



**Pleased about the cooperation agreement (from left):** Hans Bachmann (Consultant to RAIL.ONE GmbH, Germany), Tilo Brandis (President and CEO of RAIL.ONE GmbH), Bart Oudmaijer (Director of Projects, BAM Rail bv, Netherlands), Richard Ziegler (Executive Vice President and COO of RAIL.ONE GmbH, Deutschland), Sebald van Royen (Executive Board member, BAM Rail bv) and Jens Kleeberg (Head of Technology and Development, RAIL.ONE GmbH).

Photo: RAIL.ONE GmbH

The areas covered by this agreement include regulation of the responsibility of BAM Rail for construction work, as well as its provision of qualified specialist staff and required technical equipment. The scope of supplies and services provided by RAIL.ONE will include design and development of railway technology, as well as delivery of concrete sleepers.

**The two firms are pooling their competencies**

Both companies will be responsible for project management, development and modification of construction machinery, and site supervision. The concentration and combination of the specific fields of competence of the two companies will provide the Dutch infrastructure operator with expert consulting services and turnkey solutions for upgrading of Dutch heavy

rail networks on a one-stop basis. This upgrading will especially include the conversion of existing ballasted track to higher-performance and virtually non-maintenance railway lines with ballastless track systems with minimal construction periods, as the minimalisation of possessions is crucial for these types of projects. The two companies have already impressively demonstrated their capability in the construction of the HSL ZUID high-speed rail line between Amsterdam and the Belgian border – one of the largest public-private partnership projects in Europe.

**German-Dutch railway technology**

Functioning as a joint-venture company, the two firms were responsible for planning, engineering, and construction of the track system, which was

implemented on the basis of the patented RHEDA 2000® ballastless track technology of RAIL.ONE Group. The Director of Projects for BAM Rail, Bart Oudmaijer, is convinced that the forthcoming collaboration with RAIL.ONE will further confirm the reliability of German-Dutch railway technology. Mr Oudmaijer emphasises that “We are pleased to be able to offer operators and passengers the latest in railway technology, which will combine economic efficiency and comfort to a high degree.” Richard Ziegler, Chief

Operating Officer of RAIL.ONE, likewise welcomes this collaboration: “RAIL.ONE has practised technology-sharing with BAM Rail for many years.

**Better market positioning together**

By focusing our capabilities, and by systematic application of each of our respective strengths, both companies cannot fail to profit and to enhance their position on the market.”

**:Background**

**BAM Rail bv**

BAM Rail offers a complete range of rail-related services, from engineering to construction and aftercare, including 24/7 emergency callout. With a staff of more than 1,000 specialists, BAM Rail operates throughout the Netherlands and neighbouring countries. The activities cover all rail disciplines, from underground cables to the overhead catenary. BAM Rail has been involved in high-profile projects such as the High-Speed Line and the Betuwe Freight Line but is also working on urban tramlines, metro lines, mainline rail tracks and crane tracks for industry.

**RAIL.ONE**

RAIL.ONE GmbH aims to provide comprehensively oriented systems and engineering for the entire field of railway track. With its patented RHEDA 2000® ballastless track system, according to the company, it has also become a world leader in the area of high-speed rail transportation. In addition, RAIL.ONE manufactures main-track and turnout sleepers made of concrete. In these areas, RAIL.ONE GmbH as one-stop supplier – in close collaboration with its customers and partners – performs all activities involved in product development, manufacture, and application of concrete sleepers: from engineering, through production, supply and logistics to quality management. With plants in Germany, China, Romania, Spain, South Korea, Turkey and Hungary, RAIL.ONE produces more than 2.5 million main-track sleepers a year, as well as over 600,000 linear metres of turnout sleepers.

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**+++ NEWS +++**

**First section of BBI railway station fabric is complete**

On the site of Berlin's major airport project BBI (Berlin-Brandenburg-International), work on the first 185 metre long section of the railway station fabric has been completed on schedule. All in all, the subterranean BBI railway station will be 405 metres long and 60 metres wide, and will have two platforms for regional and main-line services as well as one platform for rapid transit trains. A major challenge has been posed by the different traction power systems for the rapid transit and the regional/main-line tracks (825 V DC and 15 kV AC). They generate various magnetic fields that could influence the avionics systems of the aircraft and the systems inside the terminal. To prevent this, extensive earthing to the concrete and ceiling was put in place. The whole new airport is scheduled to enter service by late October 2011.

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**News**

- Tester SICO 2049 for Axle Counter ZP30 (Thales)
- Tester for Insulated Rail Joints SICO 2046
- Selective Meter SICO 1214 - KS1

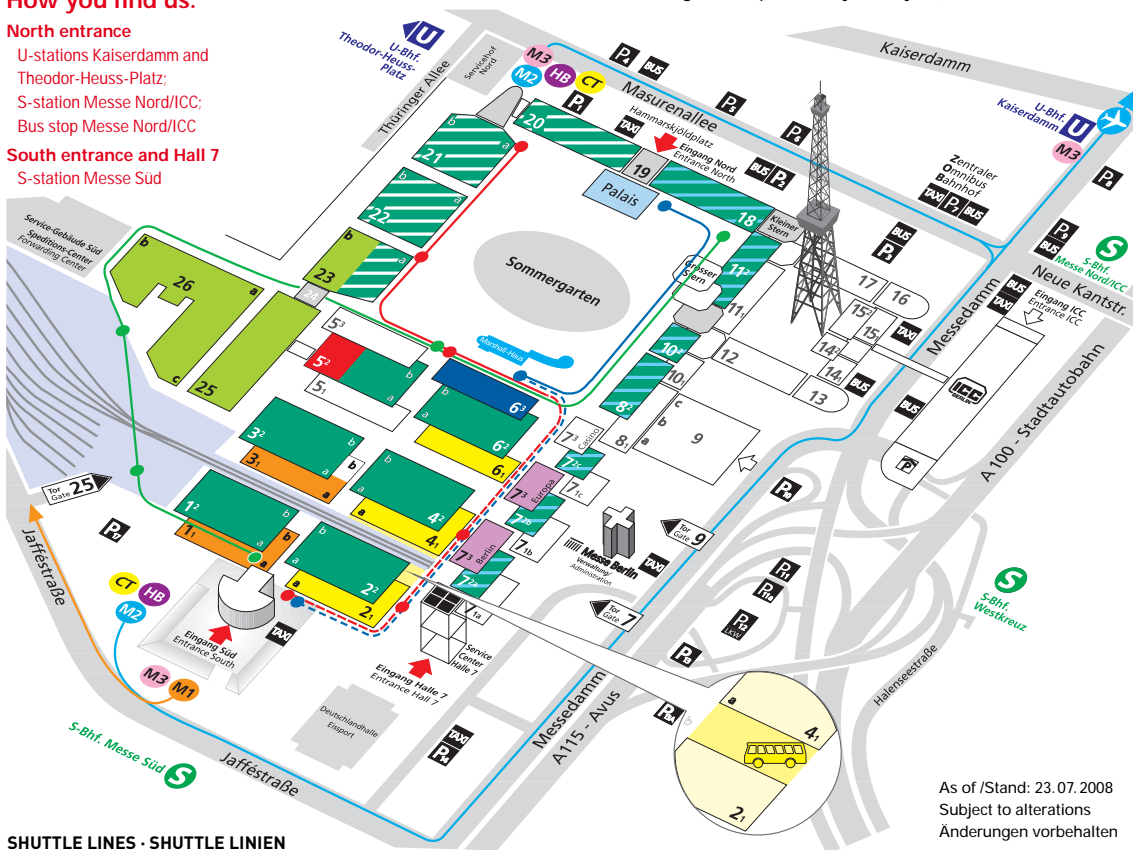
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# Messe Berlin

## How you find us.

- North entrance**  
 U-stations Kaiserdamm and Theodor-Heuss-Platz;  
 S-station Messe Nord/ICC;  
 Bus stop Messe Nord/ICC
- South entrance and Hall 7**  
 S-station Messe Süd

InnoTrans 2008, Berlin 23rd – 26th September 2008  
 Exhibition grounds (preliminary hall layout)



As of /Stand: 23.07.2008  
 Subject to alterations  
 Änderungen vorbehalten

### SHUTTLE LINES · SHUTTLE LINIEN

8 a.m. – 7 p.m. / 8.00 – 19.00 Uhr

- Olympischer Platz P+R
- Airport · Flughafen Tegel
- U Kaiserdamm
- Fairground · Gelände
- Route level 1 / Ebene 1
- Business Lounge
- Hotels
- City Transfer

### RAILWAY TECHNOLOGY

- Rolling stock and components  
 Spurgebundene Fahrzeuge und Komponenten
- Vehicle components and machinery:
- Traction and running gear · Antrieb u. Fahrwerk
  - Heating/Ventilation/Air Conditioning
  - Klima/Lüftung/Hydraulik
- Energy/electrical/electronic components
- Stromversorgung/elektrische und elektronische Komponenten
  - Service for vehicles · Service für Fahrzeuge

### PUBLIC TRANSPORT

- Local and regional buses  
 Nah- und Regionalverkehrsbusse
- Bus display area (Outdoor display halls 2.1-4.1)  
 Freigelände Buspräsentation (Hall 2.1-4.1)
- Fixed structures/Passenger fare management/  
 Passenger information systems  
 Stationäre Einrichtungen/Fahrgeldmanagement/  
 Fahrgastinformationssysteme
- Information Technologies/Transport management/  
 Communication/Data processing  
 Informationstechnologien/Verkehrsmanagement/  
 Kommunikation/Datenverarbeitung
- Freight traffic logistics · Logistik im Güterverkehr  
 Services/Consulting · Dienstleistungen/Consulting

### INTERIORS

Railway Interiors · Fahrzeugausstattung

### INFRASTRUCTURE

Railway Infrastructure/Rail Technology  
 Infrastruktur/Fahwegtechnik

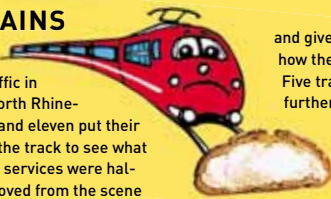
### TUNNEL CONSTRUCTION

Construction machines, -parts and -components/  
 Safety features and equipment/Communication/  
 Interior finishing/Maintenance/Services/Consulting  
 Baumaschinen, -teile und Zubehör/Sicherheits-  
 technik/Kommunikation/Innenausbau/Instand-  
 haltung/Dienstleistungen/Consulting

- InnoTrans Convention
- Outdoor displays · Gleis- und Freigelände
- Press Center · Pressezentrum
- Opening ceremony · Eröffnungsveranstaltung
- Business Lounge (Marshall-Haus)

## The last word: BREAD STOPS TRAINS

A rather special kind of physics experiment disrupted railway traffic in Velbert, in the German state of North Rhine-Westphalia. Three boys aged ten and eleven put their sandwiches and drinks packs on the track to see what a train would do to them. Railway services were halted, and the three boys were removed from the scene



and given a stern talking-to about how they had been risking their lives. Five trains were delayed, and a further five were cancelled.



## InnoTrans-TV goes on the air

InnoTrans goes TV! To mark the opening of InnoTrans 2008, the leading international transport technology trade fair is launching its own television channel. The Web platform [www.innotrans.tv](http://www.innotrans.tv) will be reporting on the world of transport technology around the clock. The main focus will naturally be on what's happening at the trade fair beneath the Berlin TV tower between 23rd and 26th September. The coverage will comprise up-to-the-minute news from the trade fair, interviews with exhibitors from all over the globe, reports on the innovative products and services on show, as well as service infor-



mation for trade visitors to the world's leading transport technology get-together. InnoTrans TV will be streamed on [www.innotrans.tv](http://www.innotrans.tv), and during the four trade visitor days it will also be broadcast at selected points in the exhibition grounds, such as the Business Lounge in the Marshall House and the Press Centre in Hall 6.3. The programme is being produced by Atkon AG Berlin in cooperation with Messe Berlin.

## Your contact partners for InnoTrans



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