



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

■ RAPID REGISTRATION PACE FOR INNOTRANS 2008

Over three quarters of exhibition space already booked

Some 15 months remain until InnoTrans 2008 starts. But preparations for the next top international trade fair for rail transport technology (23 to 26 September 2008) are already reaching top speed. InnoTrans continues to develop at a dramatic rate following its 10th anniversary. The current key words are: Even earlier, larger and more international.

More than three quarters of the exhibition space used last year already has concrete bookings. The trend towards expanding the stand sizes continues. A major reason for this is the strong rise in business visitors from all over the world, which again rose in 2006.

With more than 1,600 exhibitors from 41 countries and over 100,000 square metres of exhibition space, Inno-Trans in autumn last year again impressively expanded and underlined its position as the leading international business platform for the industry. Around 64,000 business visitors from 109 countries came to the sixth InnoTrans at Berlin's trade fair ground. The positive response from exhibitors and business visitors has continually risen in past years.

Tunnel Construction further expanded

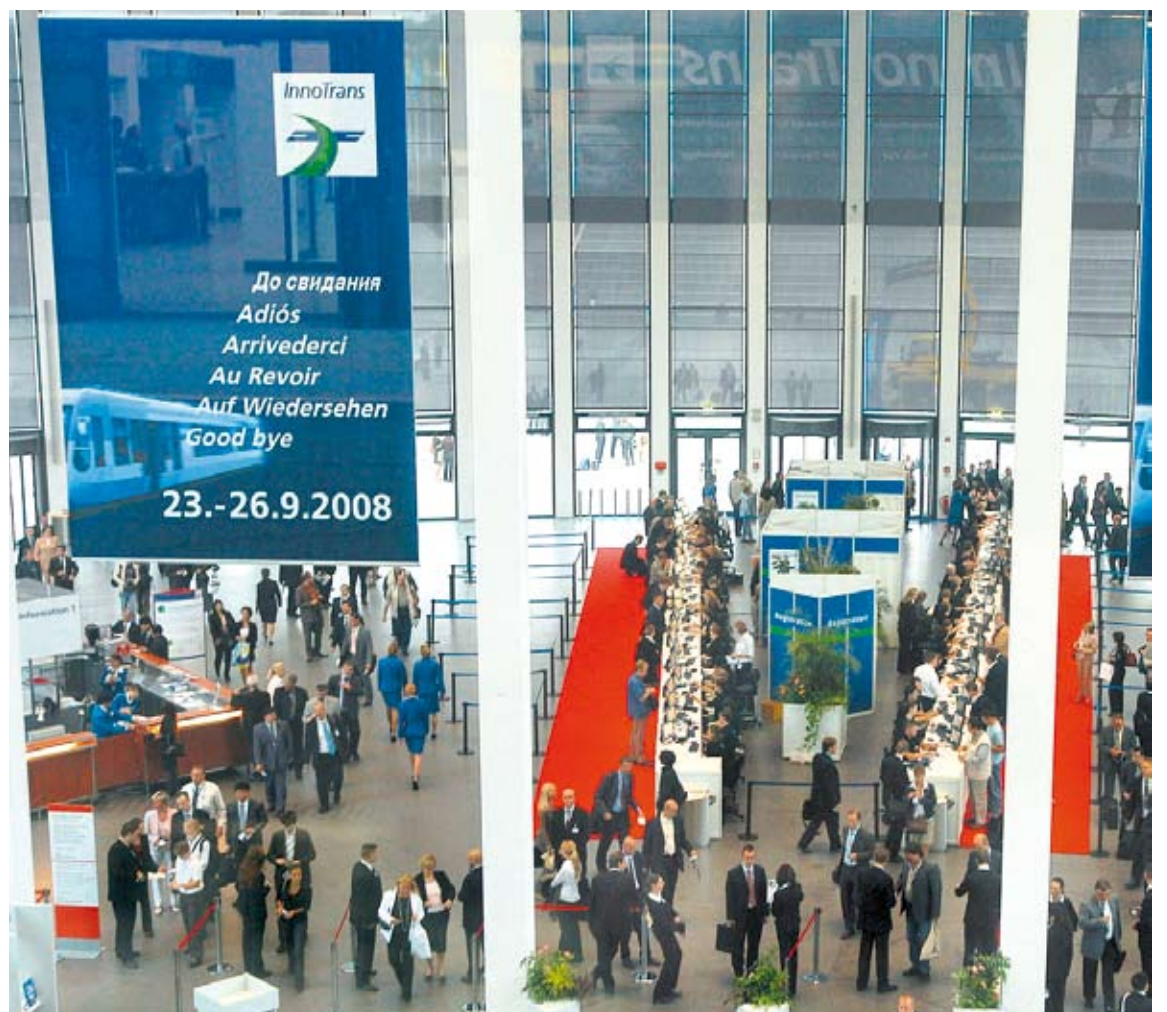
The new specialist event sector Tunnel Construction will be even more strongly integrated into the traditional exhibition areas in InnoTrans 2008. Tunnel Construction, staged in close cooperation with the STUVA – Studiengesellschaft

für unterirdische Verkehrsanlagen. V., was successfully started in InnoTrans 2006. Exhibitors and business visitors gave a highly positive reaction to the development. This new specialist event sector will at the wish of the industrial participants be further developed and linked to the trade fair section Railway Infrastructure and Railway Technology.

“Our concept for this specialist event sector provides the best conditions for the development of a central and international marketing platform for the entire tunnel construction industry,” stressed Matthias Steckmann, the Messe Berlin director responsible for the sector. “A great advantage in this concept is the wide-reaching interfaces to InnoTrans’ other specialist trade fair sections, especially the sector Railway Infrastructure.”

In 2008 too, the sector will under the aegis of STUVA and the International Tunnel Association (ITA), be accompanied by two top class discussion events in the framework of the International Tunnel Forum.

Continued on ► page 2



Looking forward to seeing you in 2008: During the InnoTrans 2006, 96 of 100 business visitors already said they would come back and participate in the next event. Photo: Messe Berlin

A word about ourselves

Dear readers,

You will have surely already noticed: This InnoTrans report is coming to you in a new form. In this format we join the current trend towards tabloid size. Compact, handy and giving a rapid overview. We have given the layout a “freshen up” treatment. We hope you agree with us: It is more modern, fresher and easier to read. So we are now able to present you with important information about InnoTrans plus the latest news from the industry in an even more attractive way in order to make reading InnoTrans

reports even more fun. And something else is new with this report. This issue will for the first time be sent to more than 100,000 readers throughout the world – in English, French and German. Interest in InnoTrans is truly global. This also applies to the report. InnoTrans continues to grow, the report is growing with it. We are now looking forward to your reaction to the contents and its new appearance.

Wolfgang Wagner,
Press spokesman,
InnoTrans

French achieve world record

19.6 mW accelerated the SNCF train unit between Paris and Strassburg to 574.8 kilometres an hour – a world record! Carried on board: Over 600 recording sensors. Background to the record breaking journey and the chronology of French rail world records on ► [Page 4](#)

Photo: Alstom



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... three quarters of exhibition space booked

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The forum is headed by Prof. Dr.-Ing. Alfred Haack. "Registrations in the traditional exhibition areas Railway Technology, Railway Infrastructure, Public Transport and even in the new sector Interiors launched in 2006 are currently higher than at any other time," said trade fair director Steckmann. "They create a real challenge in connection with the trend towards larger stand areas."

Especially strong demand is coming for the world-wide unique open-air exhibition area at InnoTrans with its 2,000 metre long stretch of the trade fair's own railtrack with direct connections to the halls.

The sector Public Transport had by 2006 developed into an independent specialist event sector, providing prestige representati-



Of special importance for InnoTrans: The open-air exhibition.

on for mass transit systems. From 2008 this sector will also combine the theme sectors information technologies and services in public passenger transport in halls 2.1 and 4.1. On an area of 6,000 square metres, the exhibition sector Interiors in InnoTrans 2006 achieved a very successful InnoTrans premiere.

The introduction of this theme as an independent section of the

specialist event found a positive reaction. Increasing demand for this sector is also being experienced for the coming InnoTrans.

All the latest information for exhibitors and for business visitors can be found on the InnoTrans website at www.innotrans.de. Here is also the opportunity to fill in and submit stand registrations.

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■ GERMAN TRANSPORT MINISTER WOLFGANG TIEFENSEE:

“Rail is the decisive foundation for the transport of the future.”

The German EU Presidency offers opportunities to move forward with especially burning transport policy questions. Which of these involve the transport mode rail and what exactly is to be done? The “Alliance for Rail” asked German Transport Minister Wolfgang Tiefensee in an exclusive interview for InnoTrans-REPORT and excerpts are given here.

Which rail transport policy focus points will you be setting for the period of the German EU presidency and what do you view as the priorities which should be achieved?

Of the priority issues in the file, the most important is the completion of the European railway area for railfreight transport. In order that we can handle the rising volumes of freight transport, we must at last remove the remaining barriers to rail transport. Real progress has been made in opening the market for railfreight transport since January 1 - but we urgently need to make progress in the European locomotive driving certificate and with the mutual technical recognition of rail vehicles.

Rail is the decisive foundation for creating the environmentally-friendly transport system of the future.

The EU Commission recently presented its half-time assessment of the implementation of the EU white paper on transport. Some observers regard the assessment as a turn away from the previous EU policy of transferring freight transport to rail and raising rail's market share. Do you see this too?

The half time assessment said clearly that the most sustainable effect for the economy, for our people and the environment can only be achieved when the individual transport modes are optimised according to their strengths and through their inter-combination.

This involves that in future more traffic will be handled by environmentally-friendly transport modes such as railways. This above all involves long-distance transport, traffic

in major cities and congested corridors. With the opening of the railfreight network in Europe from 2007, we have reached an important milestone for the market share of rail transport and a unified European railway region.

This market opening was urgently needed, as freight transport is growing dramatically. But if the market opening for freight transport is to remain more than just a da-

» Everyone is in favour of the great goal of strengthening the railways, but this means we have to jump over perceived problems.

Wolfgang Tiefensee, German Transport Minister

te, we must fill it with life and must make every effort to rapidly dismantle the remaining barriers to the actual use of rail transport. For this, we especially require the EU-wide recognition of the locomotive driver certificate and the EU-wide recognition of licensing of rail vehicles.

The EU has announced it will present a “freight logistics action plan” in 2007. Will you work for the inclusion of a firm, concrete goal in this plan aiming to achieve the transfer of freight to the environmentally-friendly transport modes ship and rail?

The EU Council of Transport Ministers favours a concept involving all transport modes which will involve continued efforts to create more environmentally-friendly transport. This for me quite clearly involves the transfer to environmentally-friendly transport modes and so especially to

rail. This is why we decided to write a concrete point in the council's decision that advanced informatics solutions must be even more strongly used, especially in traffic interchange points to achieve the further development of inter-modal logistics services. All transport modes which are generally utilised in the transport chain will profit from this. And I would like to draw attention to another very important point, which saw controver-

sial discussion before approval of the council's decision: I mean the statements about the measurements of vehicles and load units. It was substantially thanks to German efforts that no explicit preference for an expansion of the size and weight of trucks was included in the council's decision statement. This would have counter-acted the previous successful efforts to transfer traffic to rail. In addition I am generally sceptical about whether such giga liners should belong to our roads.

Railfreight transport in Germany has been winning market share back year for year since 2001. What must Europe do in the coming year to further strengthen this pleasing traffic transfer to rail?

We have achieved the turning point. For the first time since the 1950s, the modal split in 2006 changed to the advantage of rail. Railfreight transport



German Transport Minister Wolfgang Tiefensee

Photo: BMVBS

is booming as never before. Freight transport is achieving over-proportional growth. The massive investments made in rail infrastructure since 2000 are now being paid back.

For the first time, last year more than 100 billion tkm of railfreight transport were counted. Road freight transport is now for the first time growing at a slower rate than cargo carried by rail. Alone in the first half of 2006, 7.2 percent more freight was transported than in the same period a year previously. Rail was able to record the highest growth rates in volumes and performance. We must strengthen this trend. An essential step in this direction is the rapid agreement on introduction of the locomotive driving certificate I have previously mentioned in the Third Railway Package, which will ease the actual introduction of European-wide liberalisation of railfreight transport.

While the market will on one side be opened from a legal point of view, it remains closed on the other side through the lack of recognition of drivers' certificates and technical bar-

riers. It is especially regarding these questions that we need to make urgent progress at an EU level, as the existing practices lead to additional costs and delays for railway companies and equipment manufacturers and so create disadvantages for rail. Everyone is in favour of the great goal of strengthening the railways, but this means we have to jump over such perceived problems.

Rail vehicles need to be repeatedly certified individually in every EU country. This is one of the greatest barriers in international railfreight transport. How deeply will you go into this problem during the German EU presidency?

This deeply-engrained short-sighted technical attitude does not suit the railways and costs valuable competitive points in competition with roads.

In this, I wish for less of a national attitude and instead more desire for the great idea of a European railway region, from which we will all profit: The economy, rail industry and railways.

Alliance for Rail

The Alliance for Rail, based in Berlin is an independent association representing all interests. It works both nationally and internationally. It is largely financed by donations made by supporting members and from the business sector. Alliance for Rail sees itself as the driving force in politics and society to achieve an expansion of traffic carried by rail as part of the overall transport volume. www.allianz-pro-schiene.de

■ RFF, ALSTOM AND SNCF

In early April the train unit V150 at kilometre point 191 on the LGV high speed track between Paris and Strassburg reached a new world record with some 575 kilometres an hour.



Photos: Alstom

574,8 kilometres an hour on rail: World record!

The world record was achieved through cooperation between the infrastructure company Réseau Ferré de France (RFF), Alstom Transport and the French state railways SNCF, and is the result of a large test programme which started on 15 January 2007 and which involved participation of more than 300 engineers and specialists. Some 40 test drives were undertaken with speeds of over 450 kilometres, which involved a total of over 200 test hours and 3,200 kilometres travelled.

The train unit V150 comprised two TGV-POS tractor units and

three TGV-TM-Duplex (double deck) wagons with a total performance of 19.6 mW, about 25,000 HP.

A measurement laboratory on board enabled the analysis of data registered by 600 sensors with the goal of assessing the behaviour of the infrastructure and materials at this previously-unreached speed.

These measurements enabled the examination of the validity of provisional models and the assessment of validity performance of aerodynamic acoustic and vibration properties.

The old speed record had also been held by SNCF since 18 May 1990, which involved a speed of 515.3 kilometres an hour on the TGV-Atlantique route near Vendôme.

“Proof of reliability”

“Along with the technical advances I admire the human performance. This is the high point of a project which over 14 months has combined the entire expertise which can be offered by ALSTOM, RFF and SNCF. The achievement offers countries and operators, which wish to have high speed transport, the proof of its reliability,” said Philippe

Mellier, President of Alstom Transport.

Similarly proud was Anne-Marie Idrac, President of SNCF: “This speed record displays a great technical and human success. The results of tests which were performed on board the V150 train unit enable us to create the vision of a highly promising future in the high-speed transport sector based on four priorities: Passenger comfort, safety and performance, travel and environment.”

Further information about the rail high speed record in the Internet: www.record2007.com



Chronology of French rail speed records

27 and 28 March 1955:
Double world record: An Alstom and a Jeumont-Schneider-locomotive reach a speed of 331 km/h.

26 February 1981:
A TGV-Paris-South East train breaks the rail speed world record by reaching 380 km/h.

18 May 1990:
Following a test programme the TGV-TM-Atlantique train reaches 515.3 km/h.

3 April 2007:
New joint rail speed world record from RFF, ALS-TOM und SNCF: 574.8 km/h.



Thousands of sightseers stood along the track - at 575 kilometres an hour the fun was rather short.

■ SIEMENS TS AND RENFE

With 350 items from Madrid to Barcelona

It cannot yet beat the TGV's speed record, but it is currently the world's fastest production model currently in operation in scheduled rail services: The Velaro E from Siemens TS, which the Spanish railways Renfe soon plans to introduce into service between Madrid and Barcelona.

The train races along the 625 km long high-speed rail link between Madrid and Barcelona at an operational speed of 350 km/h. The journey between the two cities will then last only 2.5 hours or 1.5 hours faster than on the old track. Last September, the Velaro even reached a speed of 404 km/h.

The train is a further development of the ICE 3 operated by German railways Deutsche Bahn AG. As with the ICE 3, which has already been in operation since 2000 between Germany and the Netherlands, the propulsion components and technical equipment are mounted in the lower section of the wagons.

At the same length this means about 20 percent more space for passengers compared to a train propelled by a locomotive. Because half the axels are propelled directly and no electric locomotive is connected to the front and rear of the train, the train accelerates faster because of the better distribution of propulsion. In addition it can travel over track with steeper gradients.

Almost all seats are rotatable
Some 404 people in three classes can be accommodated with better comfort than before on this route: Almost all seats are rotatable, which means passengers can sit in the direction the train is moving.

Six audio programmes are provided. Large video displays for entertainment programmes have been mounted throughout the train.

Further LED displays inform passengers in Spanish, Catalanian and English. At the head of the train is a special wagon for the first (Club) class with a meeting and VIP room and its own kitchen. Three other dining areas are offered on the train.

Most modern train safety system fitted on board
The Velaro's train safety system is the new Standard ETCS Level 2 (ETCS: European Train Control System).

The ETCS monitors the movement of trains including speed, keeping to the allocated track route and other safety parameters. This system is set to replace the 15 European train safety systems which have grown up over past decades and which are not compatible.

The Velaro is also the first train in the world which meets the requirements for European interoperability in high speed transport (TSI) and is so prepared for international high-speed transport.

In total, Siemens Transportation Systems (TS) will deliver 26 of these high speed trains to Renfe. For 14 years the company will also undertake their maintenance. Further contracts for the Velaro platform come from Russia for the link between Moscow and St. Petersburg and from China.



Siemens will deliver a total of 26 trains.



Fully ready for ETCS 2: The "Cockpit".



Meeting and VIP rooms with own kitchen.

Photos: Siemens TS



Clearly recognisable in profile: The Velaro is a further development of the ICE 3.

Valero E – The most important technical data

Number of wagons	8
Power system (kV/Hz)	AC 25 / 50
Maximum speed (km/h)	350
Weight (empty, in t)	439
Track width (mm)	1.435
Number of seats	404
Sustainable performance (kW)	8.800
Number of orders	16 + 10

Source: Siemens TS

RECORDING TECHNOLOGY FROM PLASSER & THEURER

Fast, touchless and with added value

Maintenance is a necessary evil:

It costs money and hinders traffic on the track.

But possibilities exist to keep the expense as low as possible.



To efficiently plan and perform track maintenance work, it is a great advantage when all required data are gathered at the same time with a single survey vehicle. An additional advantage is gained if all parameters surveyed can be compiled and listed correctly in real time for every location and are also available for later analysis. In the USA, two of the latest track survey cars from the Vienna-based company Plasser & Theurer are currently in operation, fulfilling these requirements for track maintenance.

Universal track recording car EC-5

Union Pacific Railroad (UPRR) is among the largest North American railway companies. To achieve cost-effective maintenance of the railtrack network, UPRR has for many years operated equipment from Plasser & Theurer. With the high-speed universal survey car EC-5, another unit of the latest generation of the touchless, inert survey system with integrated GPS navigation and dual optical track

gauge recording has entered service.

The track geometric survey system delivers a space curve, which is an essential requirement for the correct assessment of the condition of tracks in high speed rail networks. The space curve is used to generate the following track parameters: track gauge, height of length and rise of both tracks, joint height position, ripple, bending and ground radius plus the longitudinal gradient. All survey parameters, including those from other survey systems, are fully-automatically recorded with the help of GPS navigation to achieve a picture of the actual condition of the track on the ground.

On survey operations, which can be carried out at a speed of up to 160 km/h, the EC-5 also tests rails with a fully automatic laser survey system, in order to record the track profile. In real time, the type of track is recognised along with the difference from the required profile and the posi-

tion is marked. Also surveyed are the overall rail height, top of rail width and corrugation. In addition, areas of special wear, for example the top of rail surface, are identified and surveyed.

A corrugation or ripple survey system independent of the rail profile delivers ripple wave length and ripple depth data – two parameters which are absolutely essential for rail grinding. For a fast, exact and economic recording of hindrances above surface level plus the ballast profile, Plasser & Theurer offers with the EC-5 a further survey system, in which a tunnel laser scanner measures the clearance and ballast profile over the entire cross section during the survey journey in real time.

For an optical inspection of the rails, attachment systems and sleepers, a video inspection system is integrated which permits an automatic identification and assessment of errors. The surrounding track environment can also be re-

The multi purpose track recording car TGC-3 is largely used by the New York City Transit Authority (NYCT) below ground in tunnels.

corded with a visual inspection system for immediate or later analysis. A variable camera angle and motorised zoom lens give optimal observation capability for selected areas.

The comprehensive survey equipment and the huge volume of data they collect for real time analysis requires a powerful data network for processing. Plasser American Corporation has so developed a secure and powerful onboard-network for operation on high speed track recording cars.

TGC-3 track recording car

The second track recording car with the latest design and equipment is the multi-purpose TGC-3, which is in operation with the New York City Transit Authority (NYCT). The NYCT operates the majority of the New York subway with a 371 km tunnel track network, on both steep gradients and level ground and transports an average of 4.5 million passengers on every working day.

The two-section multi-purpose track recording car TGC-3 consists of a propulsion unit with a connection to the recording vehicle and has been adapted to meet the individual demands of the NYCT. It is also fitted with the touchless inert survey system with integrated GPS navigation and dual optical track gauge survey system.

The survey sensors used in the system have an extremely robust arrangement and are mounted on a recording position, which is directly connected with the axle system of an unpowered bogie. This means the survey is undertaken in direct relation to the rail, an extra compression wagon or movements of wagon struc-

ture are not necessary. The system provides high precision even at very low measurement rates. A rail profile and a contact rail distance measurement system on the one hand measures the track profile and calculates the rail wear and on the other hand the distance between the running track and the live lines.

An electricity contact line measurement system records the horizontal and vertical distance between the railtrack and the electricity contact lines. An ultrasonic error recognition system discovers internal rail defects.

The TGC-3 is fitted with special recording and video inspection systems in connection with a lighting system for work in tunnels and platforms, as most of the NYCT track network and more than half of the stations are below ground.

The tunnel profile survey system measures a 360° cross section of the track environment, compares this with the NYCT environment profile and so discovers possible hindrances.

In parallel to this, during the journey two video inspection systems produce digital recordings or digital infra-red recordings of the track and tunnel wall, which can be placed in an archive along with important track information.

With this large volume of recording and survey equipment, which are simultaneously in operation and provide data in real time and for later analysis, the manufacturer says a much more efficient planning of track maintenance is possible.



Operating at a speed of up to 160 km/h on the network of Union Pacific Railroad in North America:
The high speed universal track recording car EC-5.

Photos: Plasser & Theurer

■ NOISE PROTECTION

More acceptance through quieter trains

Living next to a railway line is no more pleasant than living next to a motorway. The German railway industry association (VDB) has decided to set the reduction of noise emissions from rail vehicles as a high priority and to work even harder to find solutions.

To further raise the acceptance of rail as a transport mode, VDB member companies are working to achieve quieter trains, especially in freight transport. To achieve improvements in the fastest possible time, they are also pressing for an additional German government noise reduction programme. The current German state programme purely involves construction of fixed noise reduc-

tion walls along railways. But the association also wants a budget to promote noise reduction measures in rail vehicles, said VDB president Friedrich Smaxwil.

The policy up to now of purely passive noise protection measures will in the long term lead to a dead end as it is too costly in technical, financial and optical terms, he said. "Only

through the targeted creation of incentive systems to stimulate low-emission technology can we reach the expressed goal of German and European transport policy: A further long-term strengthening of environmentally-friendly rail transport," said Smaxwil.

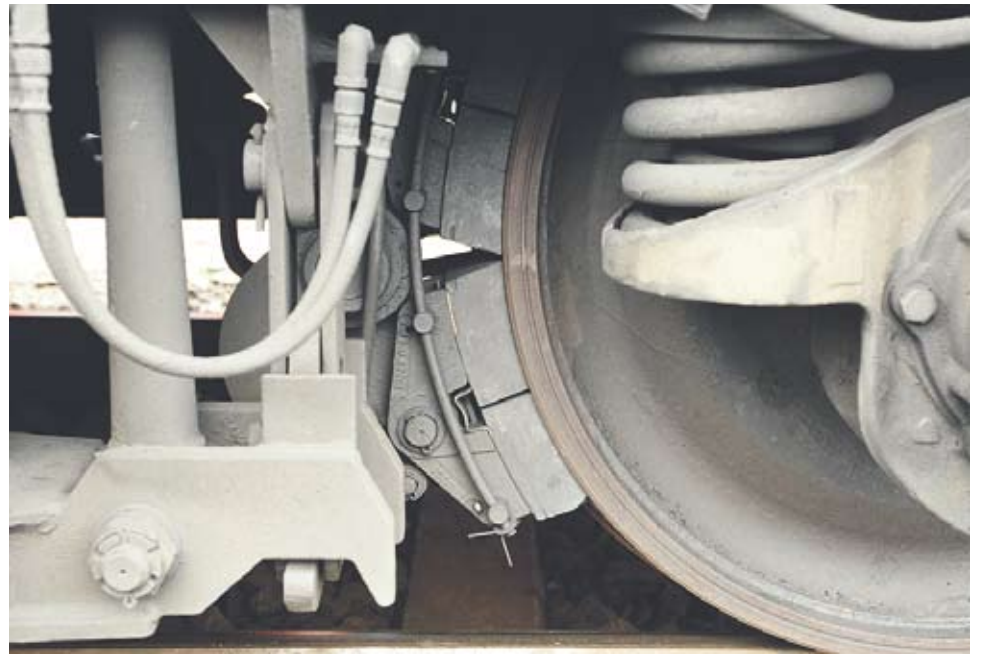
The VDB greatly welcomes the German Transport Minister's initiative, as part of the natio-

nal transport noise reduction policy, to reduce creation of noise at the original source. Smaxwil stresses that the railway industry and German railways DB AG recently agreed a joint declaration for noise reduction in rail transport.

The goal is to achieve a quieter transport mode by implementing commercially-viable solutions plus a staged de-

coupling of noise emissions from traffic growth. In addition, a project application to Germany's Economy Ministry is being prepared.

The focus of this research project "Quiet Train on Realistic Tracks" is development of economically-achievable measures to reduce noise emissions from rail transport by 20 dB by 2020.

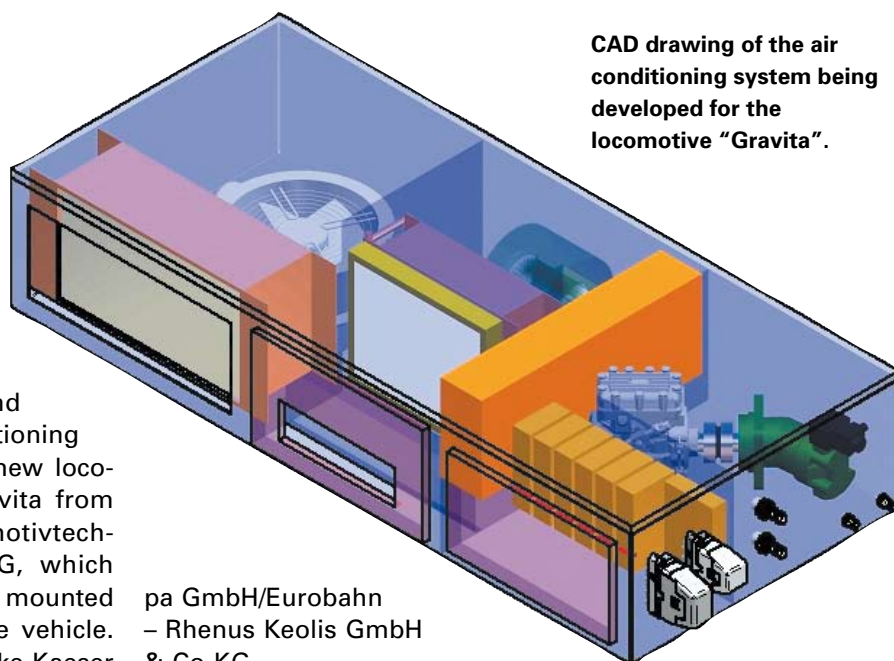


Perfect example: The Whisper Brake with a plastic brakepad makes freight trains quieter. Photo: DB AG / Pierlings

■ RAIL AIR CONDITIONING FROM NOSKE-KAESER

Trams, trainsets, locomotives: The order success continues

Hamburg-based Noske-Kaeser GmbH is one of the leading equipment suppliers of air conditioning systems for railway vehicles. The company has now won an order for development and delivery of air conditioning technology for the new locomotive of type Gravita from Voith Turbo Lokomotivtechnik GmbH & Co.KG, which has the driver's cab mounted at the middle of the vehicle. Current projects Noske-Kaeser is working on includes work for Stadler AG in Pankow and Stadler AG in Altenrhein involving 94 air conditioning systems for the tram systems Variobahn and Tango in Munich, Nuremberg, Bochum and Basle plus 150 climate systems for the electric traction train Flirt. This will enter service in Germany for Angel Trains Euro-



CAD drawing of the air conditioning system being developed for the locomotive "Gravita".

pa GmbH/Eurobahn – Rhenus Keolis GmbH & Co KG.

Work involves all phases of development from initial concept to detailed design, prototype construction and first installation.

Use of electronic components is currently of increasing importance for Noske-Kaeser: through intelligent control of air conditioning systems, higher demands can be met for

comfort and economic performance.

The engineering expertise, which is provided by the company's own personnel in all specialist areas, can look back on a rich tradition: Noske-Kaeser has been involved in air condition technology for 128 years.

■ DUPONT PERFORMANCE COATINGS

90 years experience in coatings

The global industrial group DuPont has been active for almost nine decades in research, development and production of paints and coatings.

The company entered this market in 1918 and so will celebrate its 90th anniversary as a coatings expert during the InnoTrans year 2008.

Along with coatings for cars, trucks and busses, the business sector DuPont Performance Coatings is also a specialist for coating systems for the rail industry. Products range from water and alkyd-based paints to polyurethane coatings. Regardless of whether the coating requirement is for locomotives, passenger or freight wagons, whether long distance, regional or commuter trains, first covering

In its research and development work, DuPont closely cooperates with original equipment manufacturers,

certification societies and industrial associations.

The list of approved products is long. For German railways Deutsche Bahn DuPont operates as an A1 and Q1 supplier. The client list also includes such system suppliers as Alstom, Bombardier and Siemens plus a large number of national railway companies. Work involves meeting the very different requirements of customers.

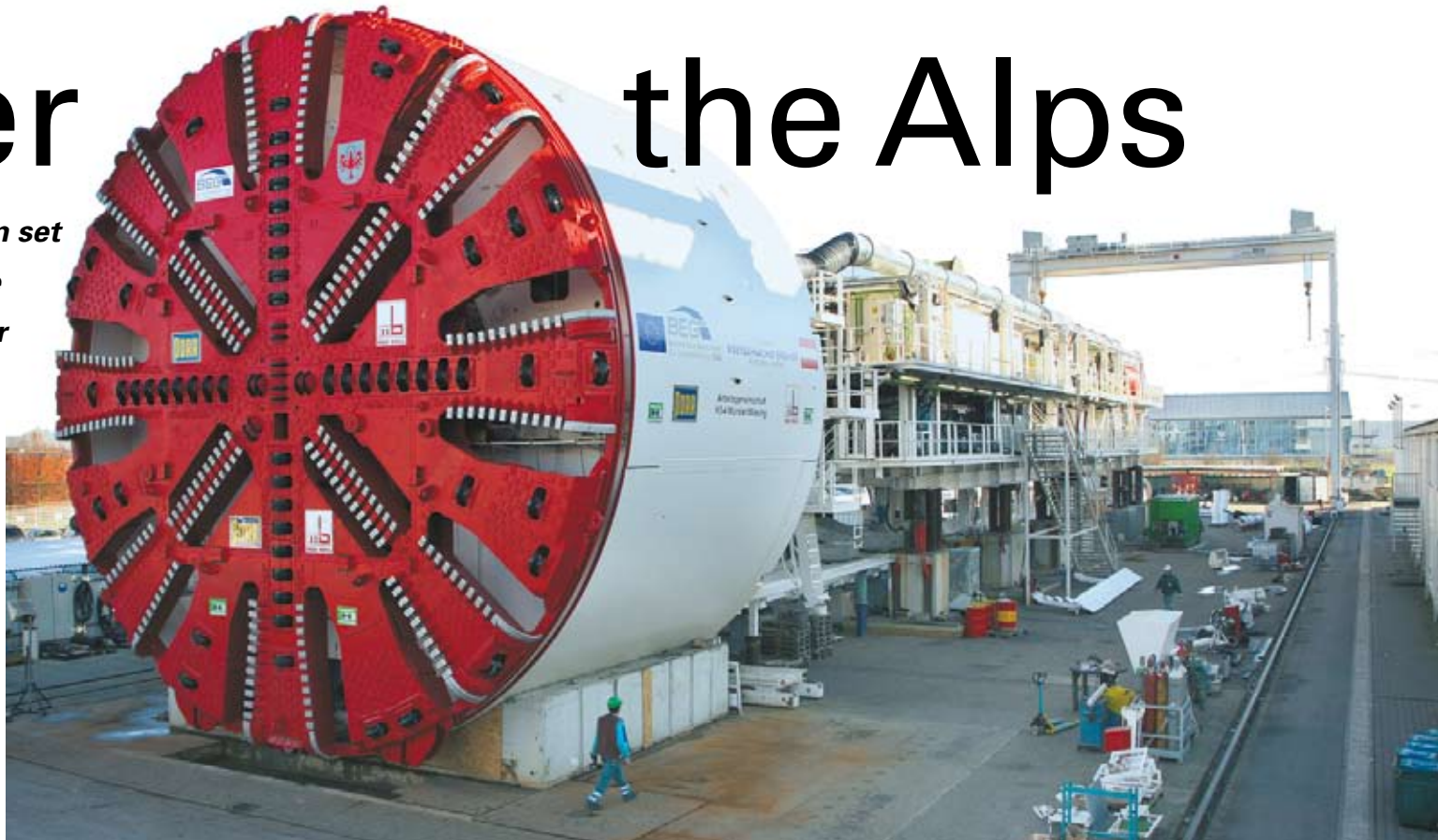
The coatings systems can be adapted to suit the individual branding of the customer by offering thousands of different colours. Water-based solutions meet the requirement for more environmentally-friendly coatings.

In addition, paints offer protection against corrosion, environment and weather plus impact and vibration. Special anti-graffiti systems reduce adhesion and ease cleaning of interiors and exteriors, which in turn leads to reduced loss of service and lower costs.

■ THE UNTERINNTAL RAILWAY

Under the Alps

A new milestone has been set in the construction of the Unterinntal railway under the Alpine mountains in Austria: Austrian railway company Brenner Eisenbahn GmbH (BEG), based in Vomp, in mid April commissioned construction of the 670 metre long "Tiergartentunnel".



The tunnel drilling machine at the works of the company Herrenknecht in Schwanau.

Photo: BEG / Herrenknecht

Solid rock awaits the tunnel builders commissioned by BEG, a company owned by Austrian national railways ÖBB. From June, the construction machines will start operations in the "Tiergarten" sector in small community of Wiesing.

In the coming two years, a construction consortium comprising the companies Beton-und Monierbau (based in Innsbruck), Alpine Mayreder (Salzburg) and Jäger (Schruns/Vorarlberg) will for around 14 million euros build a 670 metre long double track railway tunnel under the Alpine mountains.

Everything on schedule

The construction companies established a base near the mountain motorway A12. The motorway, previously built by BEG, will ensure good supplies and avoid the need for massive supporting truck journeys through the nearby villages. In order to come to the pre-construction area of the rail tunnel, a 170 metre long access area was blasted out of the mountains. From here, construction of the double-track rail tunnel in an east-west direction will start.

Of special importance is the agreement of a schedule for the work commissioned to coordinate with the drilling of the two adjacent tunnel boring machines. The Tiergarten tunnel serves as the target area for the two 3,000 t

machines and so must be finished on schedule.

"Currently all work underway is running on schedule. The deadline of 2012 for service entry will be met from today's viewpoint," commented BEG chief executive Johann Herdina about the progress of the overall project.

Tunnel drilling equipment is assembled

A significant development has come with the assembly of the tunnel drilling equipment at Brixlegg.

The cutting wheel is the largest and with 270 tonnes the heaviest piece of equipment. It was positioned in April for its

final assembly in a 30 metre start chamber near Gut Matzen. The first components were delivered back in early February by the maker, the German company Herrenknecht based in Schwanau in the Tirol.

From the coming summer, drilling will start of the 5.8 kilometre long tunnel between Münster – Wiesing. The "journey" made by the machine to the Tiergarten area will last about two years.

With a diameter of 13 metres and a length of over 100 metres, this is one of the largest tunnel drilling machines ever operated in Europe.

Electro-propulsion of over 3,500 HP will provide a continuous rotation of the 350 t cutting wheel. On average up to 12 metres of the future double-track railway tunnel will be cut out each day.

Mechanical drilling operations will be continuous apart from

a few days pause for maintenance and it is planned to keep going on weekends and public holidays around the clock.

Key points will be underpassing the Inns plus underground crossings of the tunnel of the Inntal motorway A12 and the existing railway. As practically the entire tunnel has to pass through an area saturated with ground water, the advanced stretch of new tunnel will be additionally supported with a pressurised support liquid. A few metres behind the cutting wheel, the machine mounts the pre-fabricated concrete sections on the tunnel wall. This means the basic tunnel construction will be completed in a single working process.

Production of the pre-finished concrete lining components for the tunnel is undertaken by a field factory directly next to the construction site.



The shaft at Matzen before arrival of the tunnel boring machines.

Photo: BEG

The Unterinntal railway



The first construction section of the new Unterinntal railway between Kundl and Baumkirchen is part of the northern approach to the Brenner base tunnel. Through the combination of the north-south rail traffic with east-west traffic, the existing double track line is basically working at full capacity. In order to give the transport industry a long term, attractive rail transport solution, an expansion of the existing network is necessary. The first steps in building work for the 40 kilometre link were started in 2003. Completion date is 2011. Around 1.9 billion euros has been budgeted for the entire scope of the project, with its ten major construction schemes. The mechanical section Münster–Wiesing will cost 154 million euros.

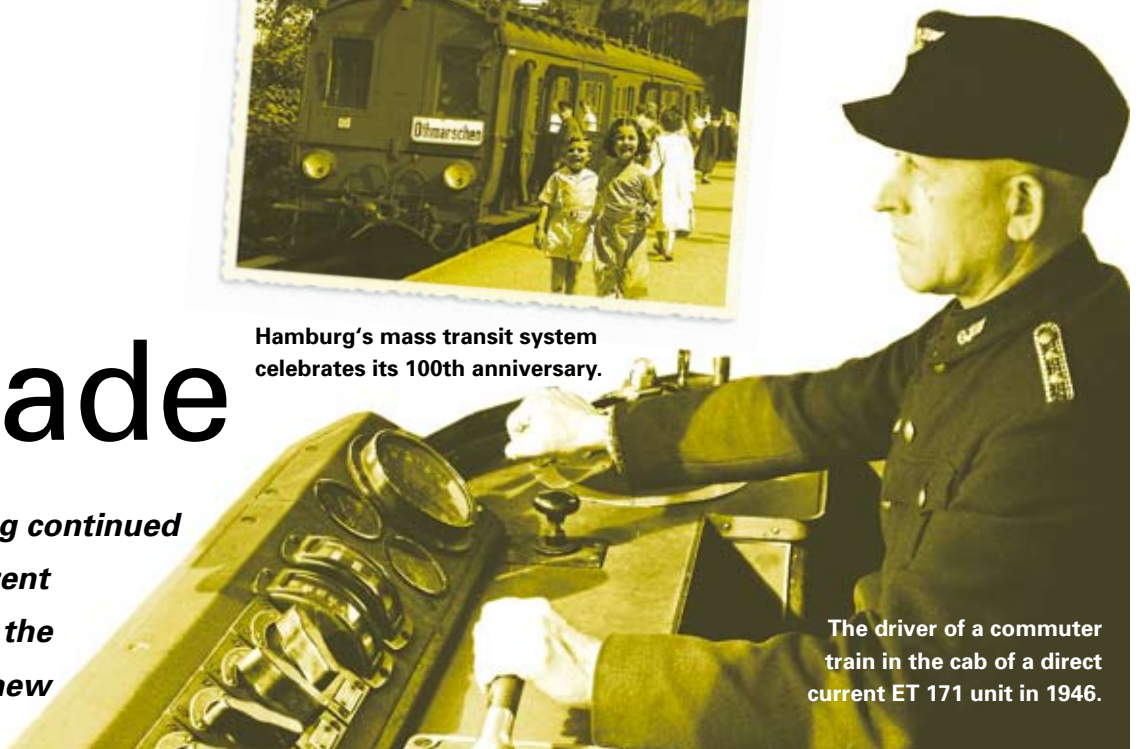
100 YEARS OF MASS TRANSIT IN HAMBURG

With dual current to Stade

What started in 1907 with alternating current is being continued 100 years later: On 9 December 2007 alternating current returned to the Hamburg mass transit network with the alternating current vehicles of type ET 474.3 on the new route to the neighbouring commuter town of Stade.



Hamburg's mass transit system celebrates its 100th anniversary.



The driver of a commuter train in the cab of a direct current ET 171 unit in 1946.

On 1 October 1907, the first of the alternating current powered trains entered service between Hamburg's Altona and Ohlsdorf districts, since early 1908 they also served Blankenese on the edge of the city. Hamburg had started operations with the first mass transit rail system of its kind in Germany and was so a pioneer.

As early as 1904 the Prussian-Hesse state rail administration and the state government of Hamburg approved construction of a new electrified rail route from the city centre to Ohlsdorf. At the same time it was decided to convert operations on the existing line Blankenese-Altona-Hamburg city centre to electrical power. Previously, this route was served with steam locomotives. The establishment of the engineering centre in Ohlsdorf for repair and maintenance work in 1907 was the origin of the city's current engineering centre. One hundred years later, the Hamburg mass transit commuter rail system has become an essential part of city life: Last year, around 181 million people used this transport network. In the past 100 years it is estimated that 12 billion passengers have been carried. On 9 December 2007 the alternating current era underwent a renaissance with the introduction of alternating current trains in services to Stade: For the first time in the network's history, trains of type ET 474.3 operated from the city's direct current train network into the alternating current network of the long and short distance train network.

"Hamburg's mass transit system is an innovative mobility service provider inside the Hamburg metropolitan region. The new service to Stade is of enormous benefit to the commuter region south of Hamburg.

This underlines the importance of a modern and efficient public transport system to the future of Hamburg as an economic location," said Ute Plambeck, the senior executive from German railway Deutsche Bahn AG responsible for the regions Hamburg and Schleswig-Holstein.

2007 a look into the future – the arrival station at Hamburg Airport. The Hamburg mass transit railway will at the end of this year start its first services to Stade, while a new link to Hamburg Airport is now under construction

History 100 years of mass transit in Hamburg

- 1907** The Hamburg Altonaer city and suburban railway starts operations with alternating current from overhead lines.
- 1938–41** The Hamburg mass transit railway's direct current system is rebuilt following Berlin's example.
- 1939** The first commuter train using a live electric rail operation is delivered.
- 1940** Official opening of the Hamburg direct current service on the route Ohlsdorf – Poppenbüttel.
- 1941** Direct current operations are extended to the entire track between Poppenbüttel and Blankenese.
- 1954–84** The mass transit railway network expands to Wedel, Bergedorf, Aumühle, Pinneberg, Harburg and Neugraben.
- 1955** The old alternating current train operation is ended: With the delivery of more direct current trains of type ET 171, all operations are transferred to a side live rail.
- 1965** An abbreviation becomes a symbol – HVV: With the establishment of the Hamburg Transport Union with the German language abbreviation HVV, all regional mass transit passenger service operators merge into an efficient single tariff association.
- 1967** The first HVV timetable comes into force.
- 1979** The city network expands: With the city tunnel between Hamburg central station and Altona via Landungsbrücken and Jungfernstieg and the connecting track between Hamburg central station and Altona via Dammtor and Holstenstrasse, the network introduces two links directly through Hamburg city centre.
- 1997** Transfer of the mass transit railway to become a 100 percent subsidiary of German national railway Deutsche Bahn AG.
- 2007** On 9 December, the dual current commuter train (direct and alternating current) will enter service to Stade.



Photos: S-Bahn Hamburg

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NEW ELECTRONIC TICKET

Just touch and then Travel

Just climb on board and ride off – mobile telephone instead of paper ticket or Smartcard. No need to search for the correct price tariff and to buy a ticket, no need either to take any other plastic cards in your wallet. A new system makes this possible.

Vodafone and DB have started a development of a mobile phone-based E-ticketing process and plan to launch this process onto the market in the near future under the name Touch&Travel. First tests in practice will start this year on the Inter City Express (ICE) route between Berlin – Hannover, on part of Berlin's commuter mass transit railway and in the entire short-distance passenger transport system in the city of Potsdam, capital of the German state of Brandenburg. In a second stage, tests are planned throughout Berlin. An introduction into the entire German market is planned following successful completion of trials.

High value solution

Before the start of their journey (after a single registration),

customers check in at a special touch point on the platform or station and use a special chip installed in their mobile phone. When they reach their destination they then check out. In the background the system calculates the check-in and check-out data along with specific customer information such as whether they have a railcard giving them extra discounts, the distance travelled and journey price. The customer then receives a monthly bill for the tickets. An immediate transfer to other transport methods – such as from the ICE train to a bus – is possible. Car sharing and call-a-bike will also be integrated into the system.

In contrast to chip cards, which require expensive terminal infrastructure, Touch&Travel requires relatively little investment

Vodafone and German railways Deutsche Bahn are betting on a technology which will be fitted in new generations of mobile phones: Special Near Field Communication Chips (NFC). This technology fitted in mobile phones enables with a press of a button the contact-free transmission of data over several centimetres between the telephone and touch station.

in the infrastructure in railway stations and other stopping points. The touch points contain simple radio chips which transfer the location information during checking in and checking out to the passenger's mobile phone. The journey invoice is saved on the mobile phone's own memory chip and can even be checked when the mobile phone's battery is empty.

Photos: DB AG



PASSENGER FARE MANAGEMENT

Comfort catches customers

How can more passengers be attracted to public transport? This would be a vital move to remove congested roads and would be a major contribution to environmental protection. From the passenger side, there are well-known demands for services transport which are punctual, clean, safe, comfortable and they also want sufficient information. All these demands must be even more strongly considered.

Information demands can be met by systems at railway stations which show in real time if the next train is punctual, when it will arrive, why it is not coming and where more information can be received or what transport alternatives are available. Comfort can be offered for example by the new passenger fare management systems such as E-ticketing. One of the latest developments is the use of mobile phones as tickets – fitted with a special chip which records when passengers board and leave and which are integrated into an automatic invoice system.

E-ticketing

The basis of interoperable electronic passenger fare management (EFM) in Germany is the VDV core application in which a data and interface standard has been agreed for EFM. This also facilitates coordination of the different players and systems. Industrial partners in the project are card.etc, Cubic, Deutsche Bank, ERG, Fraunhofer-Gesellschaft, Infineon, Philips, Siemens and T-Systems. The vision is to give passengers a single electronic ticket which functions everywhere in Germany.

It is working: So far that today Chip cards from transport companies can be issued which passengers can actually use in all other German regions. A requirement for this is that they use the EFM (regardless which variant - cashless payment, electronic ticket or automatic fare calculation) according to the VDV core application which they

must work to. They must also agree to a contract. But many public transport systems have still not taken this step.

Widely differing media

The VDV core application can be used for a wide range of media for example cash cards, customer cards from the transport companies, mobile phone chips or other intelligent instruments, especially for calculating capacity use. A requirement is an efficient microprocessor chip and the standardised contactless interface ISO/IEC 14443. In the first implementation steps, the contactless chip card is generally utilised as basis medium. With the combination of a general payment variant or public transport usage approval, this chip can also be used for other systems up to automated fare calculation and check-in/check-out (cico). The automatic ticket creation (Bein/Be-out, bibo), as successfully pilot tested in the east German city of Dresden as part of the project "intermobil", is from today's viewpoint the goal to be reached to provide ease of purchase for everyone buying time-based tickets.

Special interfaces

To facilitate use of mobile phones, the mobile phone interface developed in the project VDV core application will be used. This is based on additional, secure memory storage capacity in the mobile phone plus a standardised short-range interface. As described in the above article, these mobile phones are able to function as a user medium and as control equipment. The first test applications are already available, for example as part of the Get-in project.

Possibilities currently being discussed for the replacement of active check in terminals include low-cost radio tags, or for complete use of positioning using telecommunications services. But these must still undergo a technical and organisational evaluation.

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Transport by rail taxi

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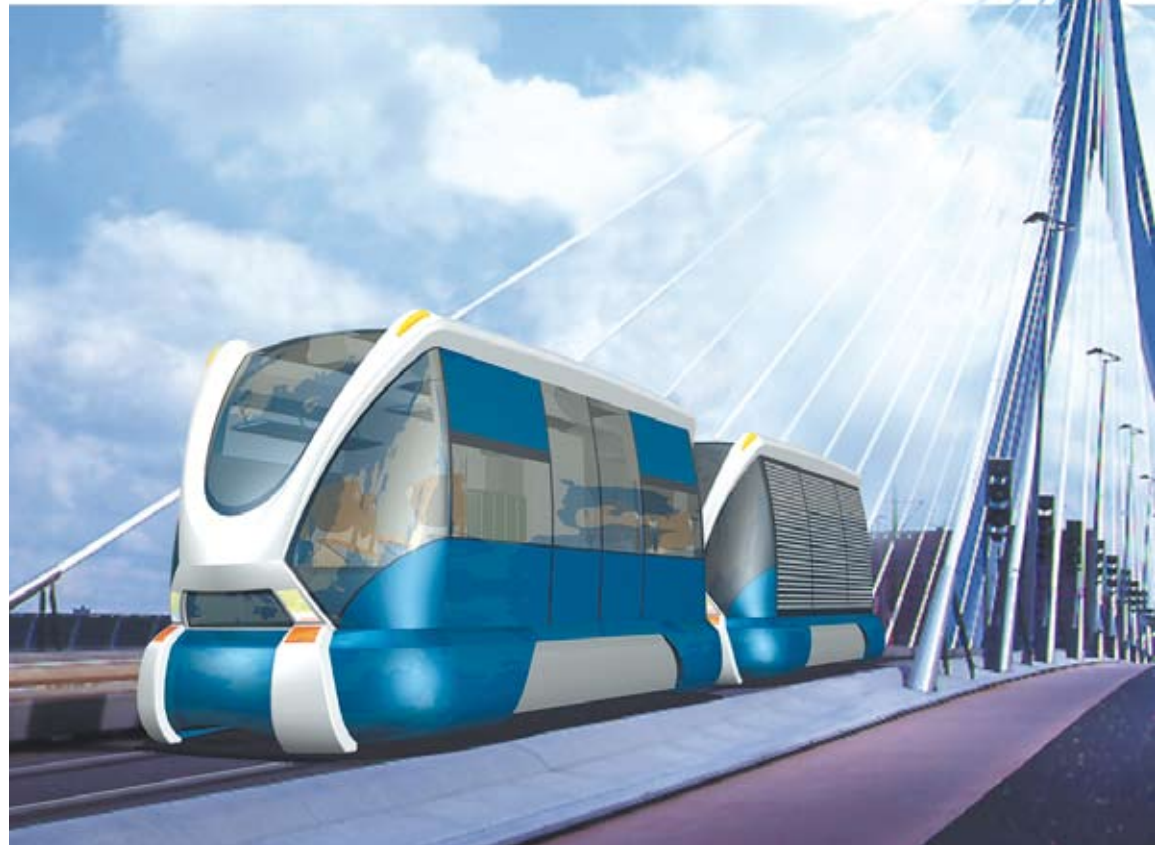
The new rail taxi is still only travelling as a small 1:2.5 scale model on the test track at Paderborn University in Germany. But the developers are searching for investors in order to put the concept on the real rail network. The new concept could accelerate freight transport as the individual rail cabs travel independently of each other, said the experts from the Fraunhofer Institute for Logistics in Paderborn at a conference about possible uses of the RailCabs which took place at the end of April. Interest in the concept at the conference was restrained. Representative of the port of Duisburg and Cologne-Bonn Airport at the conference did not want to comment about how they viewed the future chances for the system. But interest does exist in the rail taxi. Joachim Lückel, one of the fathers of the system, remains optimistic: For the last ten years he

and his colleagues have been working on the rail taxi. Every RailCab travels without a driver and is computer controlled. On long distances, the freight cabs will group together fully automatically. In a second variation, the RailCab should also be used individually for passenger transport.

Magnet propulsion uses the existing rail network

The cabs will be powered by magnet propulsion similar to that used by the Transrapid. However it does not float on magnetic force, but can travel on the existing railtrack, which would have to be equipped with the new propulsion system.

"20 million euros at a minimum is needed for the trial with a prototype in actual size," estimates Uwe Clausen from the Fraunhofer Institute. Individual rail taxis would offer great



Until now only a vision: Investors are now being sought for the RailCab. Photos: Universität Paderborn

ter flexibility than the existing train system – for example cargo services would not have to wait for enough containers to fill a freight train, say logistics researchers. Instead a RailCab could start its journey immediately from ships to its destination. "Freight transport – there will be almost nothing worse than transport by land," fears Frank Speier, head of the department of research and technology in the Research Ministry in the German state government of North Rhine Westphalia, referring to the increasing congestion using the classic transport methods.



RailCab simulation: The interior permits a range of concepts.

Now the state government is betting on the practical trials of the RailCab. "A further development is only possible jointly with actual users," said a spokeswoman for the ministry. This is why the ministry financed the conference, which focused on the use of the new concept. Since 1997 the state government has paid out about ten million euros to finance the RailCab's development. Test journeys have been underway since June 2003 at the 530 metre long track at the Paderborn University campus. From 2008 to 2012, the operators forecast a RailCab in actual size could be tested. If investors can be found and tests run successfully, the RailCab could enter commercial service after 2016.




A variant with a bar and info-counter would also be possible.

But the RailCab passenger transport version will for the time being have to stay waiting on the sidings. Further information about the project: www.railcab.de




The 1:2.5 scale model on the test track at Paderborn.

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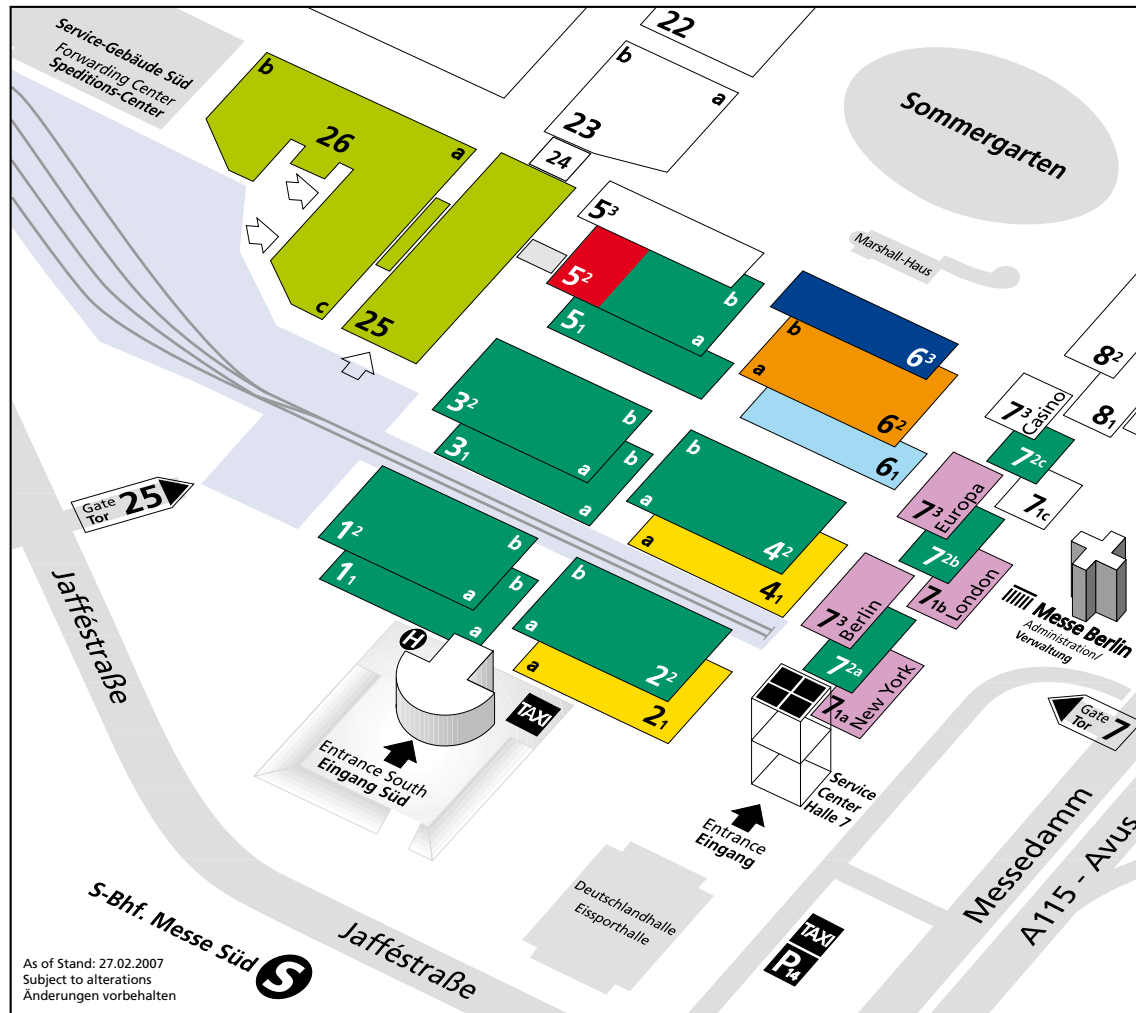
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InnoTrans 2008, 23. – 26. September 2008

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Geländeplan (Vorläufige Hallenplanung)


Messe Berlin

Railway Technology Halls 1.1, 1.2, 2.2, 3.1, 3.2, 4.2, 5.1, 5.2, 7.2abc

- Railbound vehicles for public and freight transport
Spurgebundene Fahrzeuge für den Personen- und Güterverkehr
- Subassemblies and components - Baugruppen und Komponenten
- Service for vehicles - Service für Fahrzeuge

Interiors Hall 6.2

- Railway Interiors - Fahrzeugausstattung

Infrastructure Halls 25, 26

- Railway Infrastructure/Rail Technology
- Infrastruktur / Fahrwegtechnik

Public Transport · Transport IT · Services Halls 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

Tunnel Construction Hall 5.2

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

Berlin, Europa, Halls 7.1a, 7.1b

InnoTrans Convention

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Hall 6.3

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The last word:

Under high tension

The places where couple which want to stay together discuss their more or less harmonic relationships can be rather strange. A drunken couple were spotted on the roof of a rail wagon in Frankfurt's railfreight station heatedly discussing the problems in their relationship under a 15,000 volt high tension cable. The railway switched the electricity off, but the high tension between the arguing couple continued...

INNOTRANS VIRTUAL MARKET PLACE

Successfully gain information with the Internet platform

For the periods between the trade fairs, InnoTrans' marketing portal at www.innotrans.com offers specialists, journalists and others interested worldwide with the latest information about exhibitors, products and services.

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This means the InnoTrans Virtual Market Place has established itself as the information and communications platform for the industry. The

Internet platform is used by InnoTrans exhibitors to provide information about their companies and what they offer throughout the year. Visitors to the platform gain fast and uncomplicated information about new themes and trends. Using the extended search function you can also gain a targeted overview of specific product groups. The data you have researched

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