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DLR and Bombardier Transportation sign cooperation agreement for the trains of the future

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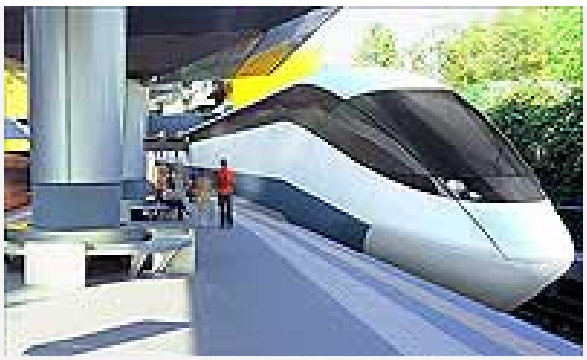

Next Generation Train

The German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR) and Bombardier Transportation are pooling their expertise in the area of railway vehicle research. During a press conference at DLR's facility in Göttingen, Prof. Johann-Dietrich Wörner, Chairman of the Executive Board of DLR, and Dr Klaus Baur, Chairman of the Management Board of Bombardier Transportation Germany, today signed a cooperation agreement aimed at long-term collaboration.

The terms of the contract include regular professional exchanges and provide for simpler commissioning of joint research and development work. The framework agreement covers an initial period up to 31 December 2014.

The main aim of the agreement is to jointly promote research and development into next-generation high-speed trains and to optimise the use of each party’s expertise. Practical fields of collaboration are railway vehicle aerodynamics and aeroacoustics, dynamic stability, interior airflows and interior acoustics. Lightweight vehicle construction, energy systems and energy management, issues regarding homologation and railway control systems, as well as safety systems, are also covered.

During the press conference at DLR's facility in Göttingen

"In the medium-term we expect the creation of express trains that are more climate-friendly, more efficient, lighter and more comfortable," explained Prof. Wörner during the signing ceremony. "We are developing technologies for tomorrow's trains and identifying what could be technically feasible. However, only with a strong partner from private industry, such as the one we have found in Bombardier Transportation to an optimum degree, can we determine whether and how our ideas can actually be implemented in practice," continued Prof. Wörner. DLR was pleased to agree to Bombardier Transportations proposal to enter into a framework agreement, the DLR Chairman explained. He said that the Göttingen research site possesses a long tradition and an excellent level of expertise in the field of high-speed research. Over the next year, two key test facilities for high-speed vehicle construction are to be opened: a tunnel simulation facility that is globally unique and a crosswind test facility.

"DLR is an ideal research and development partner for Bombardier. We are world market leader in rail technology; DLR is the leading research institution in the area of mobility. This is an ideal combination for exchange between industry and science," emphasized Dr Klaus Baur, Chairman of the Management Board of Bombardier Transportation Germany.

"Both partners have excellent specialists, whose fields of activity outstandingly complement each other. We will use these abilities in close cooperation and for a systematic exchange of expert knowledge. The innovative strategy of Bombardier focuses on making rail traffic even more attractive, more economical and environmentally friendly. Together with DLR we will be able to recognise and set technical trends even earlier," continued Dr Baur.

In two special presentations, Prof. Andreas Dillmann, Executive Director of DLR's Institute of Aerodynamics and Flow Technology in Göttingen, and Dr Alexander Orellano, Manager, Centre of Competence in Aero- and Thermodynamics at Bombardier Transportation, presented the topics of railway transportation aerodynamics and high-speed research for the trains of the future.

Aerodynamic model in a wind tunnel

Prof. Dillmann explained that a key safety aspect for high-speed trains is crosswind stability, especially with regard to double-deck trains as planned by DLR. The forces acting upon high-speed trains are enormous, particularly in tunnels, on bridges or when there is oncoming traffic. For example, at a speed of 300 kilometres per hour, there is very little downforce on the leading vehicle of the train, so it could tip over if subjected to a strong crosswind.

Dr Orellano used the aerodynamic table developed by Bombardier Transportation to demonstrate the aerodynamic effects that act upon trains that are constructed using various techniques. Using a silver rotary switch, five construction variables can be adjusted for the table. The user can then run a race against the ZEFIRO high-speed train developed by Bombardier and tested in DLR's facilities. In this way, users can understand which components of a train have an effect on aerodynamics.

With its five wind tunnels related to high-speed vehicle construction, DLR possesses a test facility portfolio that is unique in Europe. At DLR, the elements for tomorrow's trains come together in the 'Next Generation Train' project. The expertise of nine of DLR's institutes will be combined under the auspices of the DLR Institute for Vehicle Concepts in Stuttgart.

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