

Industry Sector Mobility Division

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Siemens presents new generation of fully automated metro

World premiere of Airval vehicle at UITP World Congress in Vienna

Siemens has now presented a new model of airport people mover vehicle at the UITP World Congress for mobility and public transport in Vienna, Austria. The new Airval vehicle was revealed today by Hans-Joerg Grundmann, CEO of Siemens Mobility, together with Robert Lohr, President of Lohr Group. Since 2004, Siemens has been developing in France the new Neoval generation of rubber-tired fully automated metro together with Lohr Industrie. The new pre-series vehicle went successfully through its qualification and testing program and is presented for the first time. Main innovations and customer benefits include more passenger comfort, increased energy efficiency, improved flexibility, and reduction of implementation and operating cost.

With the new Airval vehicle Siemens has reached an important milestone in its research and development program entitled Neoval. This R&D program is today giving life to two products: Cityval, a smart modular train for sustainable urban development, and the airport people mover Airval. Like its predecessor, the Val 208, Airval and Cityval are driverless, rubber-tired and modular transportation systems.

Thanks to its one to six car configuration, Airval provides a flexible capacity from 1,000 to 30,000 passengers per hour and per direction. The service capability of up to 24 hours, seven days a week, is adapted to the fluctuating demand of large airports. "This new design allows a full customization of the vehicle to our customers' needs and an easy localization in the various regions of the world," said Hans-Joerg Grundmann, CEO of the Siemens Mobility Division, during the revealing ceremony.

The passenger service of Airval and Cityval are optimized through the shortest possible headway (60 seconds) and a reduced trip time thanks to an operating speed of 80 km per hour and a high

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acceleration and deceleration rate. A big advantage for passengers is that travel times will be considerably shorter overall. Besides that, the new vehicle design combines a more generous layout of the interior with a higher seating capacity in comparison to the previous Val system.

Since the beginning of March 2009, the first Neoval pre-series vehicle is running on Lohr's test track in Strasbourg, France. As most mechanical tests were already achieved last year on the prototype vehicle, the major focus for the testing period is now to evaluate the passenger comfort and communication tools and to run a 30,000 km driverless endurance test.

Main innovations: Modularity, flexibility and energy efficiency

The clear focus of the development program was to minimize the energy consumption and reduce the system to the lowest emission of dust or noise. The reduction of electrical consumption was achieved by combining several innovative concepts like 100 percent electrical braking in service, energy re-use on-board and along the line through a combination of energy storages with double-layer capacitors and batteries, as well as fleet optimization algorithms which maximize the re-use of energy by accelerating trains.

This new design brings enhanced modularity in the interior arrangement but also in the train configuration with the capability to dynamically change the size of the train during peak and off-peak hours. With the latest driverless Communication Based Train Control (CBTC) function, the transportation capacity can be dynamically adapted by coupling or decoupling up to six cars as a function of traffic volume.

The innovative guidance system based on a central guidance rail allows a simplification of the track way and a dramatic reduction of civil work costs while the onboard storage of electrical energy enables the reduction of energy consumption.

“The system is innovative but is made of components already successfully in operation,” emphasized Robert Lohr, President of the Lohr Group. “The complete vehicle has already been running on a test track since more than one year.”

From Val to Neoval

Since the introduction of the Val mass transit system some 26 years ago, Siemens Mobility has continually updated the system, optimizing its safety and passenger comfort. Airval and Cityval are evolutions of the Val system that Siemens Mobility is currently researching with Lohr Industrie within the context of the Neoval research program. Within the cooperation, Lohr Industrie is in

charge of the realization of the design and production of the new vehicle while Siemens is responsible for the complete system from design to implementation and is in charge for all project implementation, marketing and sales activities. Furthermore, Siemens is responsible for the train control, communications, passenger information system, platform screen doors, power supply, track way and depot.

Since 1983, more than two billion passengers have been transported. Siemens Mobility has successfully implemented eleven fully automated metros of the Val type worldwide – including four as airport people movers, e.g. at Orly and Charles de Gaulle airports (two lines) in Paris, France, as well as Chicago's O'Hare airport in Illinois, USA. In addition, Urban Val systems are operated in France in Lille (two lines), Toulouse (two lines), and Rennes as well as in Taiwan (Taipei) and in Italy (Turin). Under construction is one the Val system in Uijeongbu (Korea).

Siemens is the worldwide leading supplier of fully automated metro systems: fully automated metros operate or are under construction in Paris and Lyon (France), Nuremberg (Germany), Budapest (Hungary), Barcelona (Spain), Sao Paulo (Brazil) and Helsinki (Finland).

The **Siemens Industry Sector** (Erlangen, Germany) is the worldwide leading supplier of production, transportation, building and lighting technologies. With integrated automation technologies as well as comprehensive industry-specific solutions, Siemens increases the productivity, efficiency and flexibility of its customers in the fields of industry and infrastructure. The Sector consists of six Divisions: Building Technologies, Drive Technologies, Industry Automation, Industry Solutions, Mobility and Osram. With around 222,000 employees worldwide Siemens Industry posted a profit of EUR3.86 billion with revenues totaling EUR38 billion in fiscal year 2008 (ended September 30).

<http://www.siemens.com/industry>

The **Mobility** Division (Erlangen, Germany) is the internationally leading provider of transportation and logistics solutions. With its "Complete mobility" approach, the Division is focused on networking the various modes of transportation in order to ensure the efficient transport of people and goods. "Complete mobility" combines the company's competence in operations control systems for railways and traffic control systems for roadways together with solutions for airport logistics, postal automation, traction power supplies and rolling stock for mass transit, regional and mainline services, turnkey systems as well as forward-looking service concepts. www.siemens.com/mobility

LOHR Industrie is a French private group based in Alsace near Strasbourg, world specialist in the design and production of transport systems of goods and persons. The company is mainly active in three specific areas: Road transport, with Eurolohr (car-carriers) Urban transport, with Translohr (tramway on tires) and Neoval (automatic people mover, in cooperation with Siemens) as well as Rail transport with Modalohr (for combined transport rail - road). The group has factories in Turkey, Serbia, China, India, United States and Mexico. www.lohr.fr/