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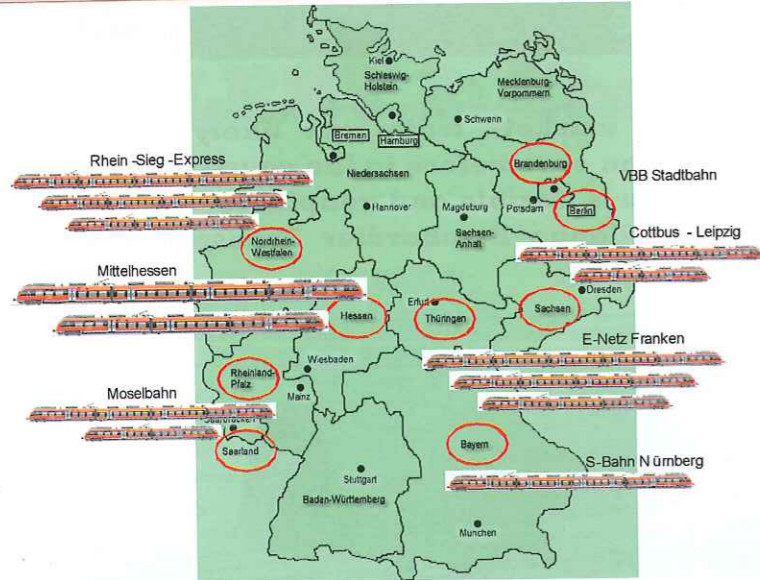
The Zefiro Family Grows

Talgo Electro-Diesel Trains

2nd Russian Freight Conference

The New Vossloh Locomotive Family





Map showing where the many different types of Talent 2 are to be entering service soon.

550 mm a sliding step 360 mm above rail top can be installed.

The windows, fitted with safety glass, are supplied by Saint-Gobain of Dąbrowa Górnicza in Poland, while Bode is the manufacturer of the electrically operating sliding-plug entrance doors. The EBA's latest safety requirements stipulate that door closing must be monitored by optical sensors acting in two dimensions, so the doors are fitted with highly sensitive rubber edging strips incorporating Mayser electronic sensors. The wheelchair accessible WC cubicle is manufactured in Bahrain, while its interior fittings come from Denmark.

Liebherr supplied the air conditioning systems. While the units on the intermediate cars are rated at 33 kW for heating, those for the end cars are rated at 31 kW. For cooling, all the units are rated at 27 kW. Warm air is fed into the saloons from below, cool air from the apertures in the roof. The cabs have separate air conditioning units, rated at 5.4 kW for heating and 4.5 kW for cooling.

Electrical Equipment

Although the DB Talent 2 EMUs will operate off 15 kV 16.7 Hz, the train can also be built for other types of

electrification system (15 + 25 kV AC and 3 + 1.5 kV DC). A single pantograph (produced by Stemmann) feeds the electrical equipment, which was designed at Bombardier Västerås. The traction equipment is mounted on the roof with the exception of the ABB traction transformers, and the 110 V, 105 Ah batteries, which are suspended from the underframes of the end cars.

Two types of traction transformers were specified - a four-traction winding and a two-traction winding, instead of a single six-traction winding, for improved weight distribution. They are combined in three ways:

- two and three-car EMUs have one large transformer with an output of 1,712 kVA,
- four and five-car EMUs have one large transformer and one smaller one, with a total output of 2,568 kVA (i. e. 1,712 + 856 kVA),
- six-car EMUs have two large transformers with a combined output of 3,424 kVA.

This meant that ABB had to design two new traction transformers with the similar electrical criteria in order to allow a trouble-free combination of both small and large types without requiring any modification of the traction converters. Moreover, since the Talent 2 must conform with Bombardier's ECO4 policy,



Photo: Bombardier

442 214 at Hennigsdorf works on 10 March 2009. This is one of five for S-Bahn Nürnberg (442 212 to 216), which will not be incorporated in the DB fleet.

the traction transformer was designed to operate at an energy efficiency level of 93.5 %, rather than the standard average of 90 % for a train operating off 15 kV AC.

Each powered bogie has its own traction inverter, two of which include auxiliary inverters, while a separate 500 W inverter feeds the 24 V DC circuit. ŠKODA ELECTRIC asynchronous, four-pole, forced ventilation traction motors power the wheelsets of the two end bogies and those of the central articulation bogie. They have a maximum power of 505 kW and a continuous rating of 380 kW, are fully-suspended,

and transmission is via a toothed coupling and a set of single-reduction Wateeuw gears, which are suspended from the underframe on one side, and rest on the axle. Two-stage axlebox is provided for the powered central articulation bogie because of the limited space available there.

Each end bogie is equipped with electromagnetic rail brakes, while Knorr electro-pneumatic disk brakes act on the wheels, and there are also spring-loaded parking brakes. The five-car EMUs are fitted with three magnetic rail brakes. Both end bogies have Delimon flange lubrication equipment.



Photo: ABB

A two-traction winding Class A traction transformer for Talent 2 EMUs. It is designed to operate off 15 kV 16.7 Hz, giving an output of 856 kVA, its short circuit voltage is 22 %, and at 85 °C its losses are 62 kW. The cooling medium is mineral oil, the maximum oil temperature is +105 °C, the minimum service temperature is -25 °C. The transformer measures 2,654 x 2,341.5 x 806.5 mm, and it weighs 3,800 kg. It incorporates an oil pump, three flange valves, three oil drain screws, an Elastimold high voltage bushing, four low voltage Pfisterer and one DIN bushings, and one overpressure valve. Protection against radio interference is incorporated.

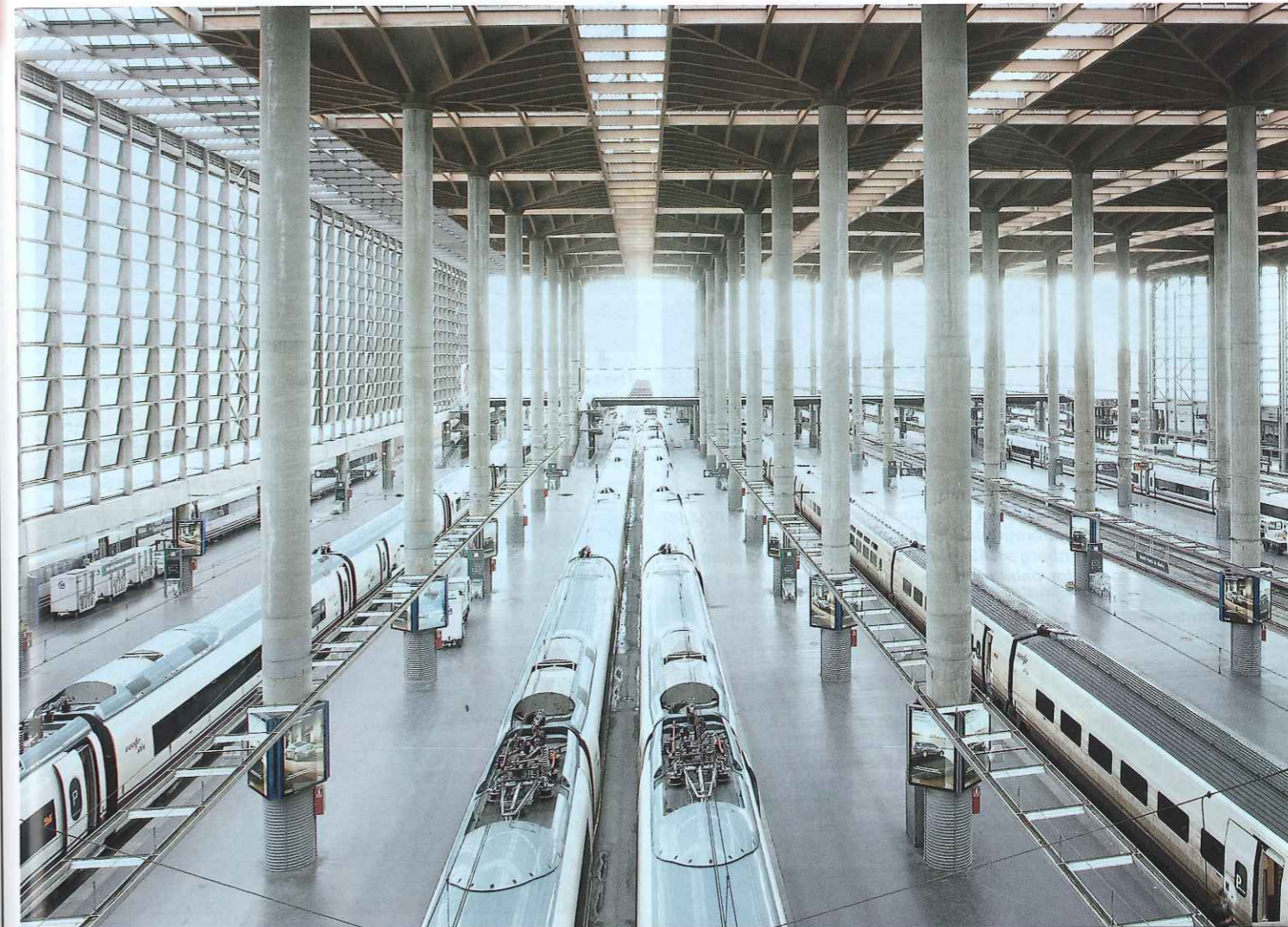


The Talent 2 runs on bogies from the Flex-Compact family, like those on which the AGC and Spacium are mounted. The primary suspension system comprises rubber bushes and steel springs with a vertical shock absorber on its outer side.

Photo on the right: the secondary suspension is pneumatic, comprising air bags, with rubber/metallic auxiliary springs on either side, and complemented by a vertical shock absorber, two torsion anti-roll stabilizers, two yaw dampers and one horizontal damper. This photo was taken at Hennigsdorf on 18 June 2010 during a media event.



Photo: Bombardier



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