

The Berlin Innotrans Trade Fair 2012

The Innotrans railway trade exhibition in Berlin, which has long been the largest event of its kind in the world, is quite a phenomenon. Year for year, the number of exhibitors and visitors has grown steadily, while the 3.5 kilometres of outdoor track are packed ever more densely with rolling stock of all kinds. 104 world premieres are showcased this time round, as organisers Messe Berlin announced at the opening press conference. Obviously, though, this list is by no means all made up of new rolling stock or main components, but also includes such items as a "door opener button with a larger touch surface" and "diesel oil-resistant cable marking".

The somewhat grand announcements cannot hide the fact that some important new products were missing from the outdoor exhibits this year. Certainly the most promi-

nent absentee was Siemens' brand new "Eurostar Velaro", the first of which was in fact in Germany at the time of the trade fair, although not in Berlin but at Siemens' Wildenrath test centre. Siemens would have loved to show off the first of the 16-coach high-speed multiple units in Berlin, but Eurostar was against it. So one had to make do with a mock-up of the "ICx" end coach which was on view at the Deutsche Bahn stand.

Bombardier had a walk-in mock-up of a "Frecciarossa 1000" end coach on display. The multisystem high-speed train built jointly with AnsaldoBreda and designed for speeds of up to 360 km/h is supposed to be capable of operating not only in Italy, but also in Germany, Austria, Switzerland, the Netherlands, Belgium and Spain. In the regional transport sector, Bombardier presented the

"Francilien", a new generation of extra-wide suburban trains deployed in the greater Paris area, which went into service in December 2009. On the other hand, the brand new "Régio 2N" articulated train which has alternating single- and double-deck coaches was nowhere to be seen.

Alstom for its part was not exhibiting its new regional train "Coradia Polyvalent" ordered by SNCF. Test runs with the first trains of this type have been in progress for some time now.

High-speed trains: Talgo showcases the "Avril"

The field was thus clear for Spanish manufacturer Talgo to present what was probably the most sensational new product: a power car and two coaches of its newly developed 380 km/h high-speed train "Avril". Going by the design images released earlier it was expected that the Avril would be configured as a multiple-unit train with distributed drives. However, at least the prototype consists of two power cars with classic bogies and twelve non-powered intermediate coaches in an articulated train composition, although a version with seats in all coaches is to be developed as well.

In terms of looks, there is no denying a great similarity with the Talgo 350 which is in service with RENFE as Classes 102 and 112. The Spanish manufacturer had cooperated in a consortium with Bombardier on these trains. The Avril, on the other hand, is a one hundred percent Talgo in-house development. ABB delivers the traction equipment, the front module with Scharfenberg coupling and crash element is sourced from Voith, and the Pininfarina design studio is responsible for the front end design.

Owing to the short coaches and thanks to an optimized coach body cross-section, Talgo has increased the body width of the Avril to 3200 mm as opposed to the customary 2900 mm. This extra width can be utilized to provide acceptably comfortable 3+2 seating in second class. According to the manufacturer's concept, the centre seat of each row is only to be sold if there is great demand. Energy efficiency is another scoring point: thanks to its low weight (a 200-metre train weighs in at 315 metric tons) and aerodynamic shape, energy consumption is claimed to be up to 20 percent lower than that of its competitors. Rival Bombardier for its part claims that the new "Zefiro" high-speed trains it is building for Italy will have "a lower energy consumption than any other high-speed train in the world".

To date, no customers have actually ordered the Avril. However, the new Avril concept can be expected to play a role in the Talgo



Above: The Avril power car strongly resembles that of the Talgo 350 built for RENFE (photo: B. Piplack).

Below: The Avril second-class coach has 50 seats in 3+2 configuration (photo: M. Rellstab).



Top left: Deutsche Bahn unveiled a mockup of the ICx, the new train generation for mainline traffic with a top speed of 249 km/h being built by Siemens, with Bombardier as sub-contractor (photo: J. Lüthard).

Top right: Bombardier presented a mockup of the "V 350 Zefiro" or "Frecciarossa 1000" which it is producing jointly with AnsaldoBreda. Billed as the "most stunning trains in the world" they will have 471 seats in 4 classes (photo: M. Reilstab).

Above: Exterior and interior view of the Bombardier multi-engine diesel locomotive built for Deutsche Bahn (photos: B. Piplack / M. Reilstab).

bid for SBB which has invited tenders for 29 trains for international services.

Locomotives: "Last-mile" electric and multi-motor diesel versions

Since Bombardier presented a "Traxx" electric locomotive with supplementary diesel engine for operation on sidings last year, it was only to be expected that Siemens would follow suit with the "Vectron". No. 192 961 which is on view at the Innotrans is an AC locomotive with additional diesel and generator unit rated at 180 kW.

The Vectron has now received unlimited certification for Romania and Poland, and temporary certification for Sweden. Certification runs have been completed in Germany and Austria. However, only two customers have shown enthusiasm for the Vectron so far: Railpool has ordered six locomotives and Italian railway operator Fuori Muro two. A marked feature is the inconvenient arrangement of the side windows: to enable the driver's cab to be exchanged easily in the event of a collision, the side entrances and windows are placed

Right: Besides Bombardier and Siemens, Pesa has now also developed an electric mainline locomotive with auxiliary diesel generator set (photo: S. Schrader).



The "Griffin" built by Polish 7 manufacturer ZNLE is available in numerous versions. The multi-system version E4MSU was on view in Berlin (photo: B. Schulz).





GE Transportation's "PowerHaul" locomotive in the livery of its first future operator is pushed onto the outdoor exhibition area of the Berlin Trade Fair Centre (photo: S. Schrader).

far back, making it impossible for the driver to glance backwards quickly.

Apart from the Vectron 192 961 from Siemens and Traxx 187 002 from Bombardier, there was a third electric locomotive with auxiliary diesel set making a surprise appearance. This was the "Gama Marathon", a four-axle DC locomotive from Polish manufacturer Pesa. In electric mode it has a power rating of 5.6 MW giving a top speed of 140 km/h. Pesa has announced that the new Gama family will also be available for other power supply systems and for deployment in passenger services at up to 190 km/h. It is also working on a diesel version.

There was a second surprise in store from Poland. Gliwice-based manufacturer ZNLE presented the "Griffin" E4MSU, a multisys-

tem locomotive that can handle 15 kV / 16.7 Hz or 25 kV / 50 Hz AC as well as 3 kV DC. Numerous versions are available, ranging from the DC-only engine with a top speed of 140 km/h to a 200 km/h multisystem locomotive; the specified continuous rating in all cases is 5.6 MW. A 2.3-MW diesel version has also been announced.

Bombardier was also showing the 245 003, one of the first of an initial batch of 20 new DB diesel locomotives which are equipped with four small "powerpacks" rather than one large diesel generator set. Four Caterpillar lorry diesels deliver 563 kW each. The concept of the Traxx P160 DE Multi-Engine, as it is designated by the manufacturer, is expected to reduce energy consumption and emission of pollutants during partial-load operation.



Left: DB diesel multiple unit 642 129 after conversion into a hybrid vehicle (photo: B. Piplack).

Below: Polish manufacturer Pesa presented the first of twelve "Link" diesel multiple units in the version for the Regentalbahn (photo: S. Schrader).



Vossloh has further developed its Class G6 which it presented four years ago and has built a two-engined version. The two six-cylinder lorry engines have a power output of 350 kW each and comply with the EU IIIb exhaust emission standard which is comparable with the Euro-5 standard for road traffic. The Kiel-based manufacturer also presented the DE 12, a four-axle, diesel-electric shunting and mainline locomotive rated at 1200 kW.

The US company General Electric (GE) is having diesel-electric locomotives of the "PowerHaul" class assembled by Tülomsaş in Turkey for customers in Europe, Asia and Africa. German railway operator Heavy Haul Power International is planning to procure at least two of these engines; the first was on show at the Innotrans.

Multiple units: Breakthrough for Pesa

In the regional transport sector, Pesa's "Link" diesel multiple unit (DMU) attracted considerable attention. The Polish manufacturer used the occasion to showcase the first train in the version for the Bavarian Regentalbahn (also known as the "Länderbahn") just nine months after the order was signed. This company has ordered twelve two-coach DMUs for operating the "Oberpfalzbahn" route Regensburg – Marktredwitz – Schirnding as of December 2014. Two MTU diesels each deliver 390 kW, giving a top speed of 120 km/h. There is seating for 124 passengers, including 21 tip-up seats. Deutsche Bahn has signed two framework agreements with Pesa for delivery of up to 470 such DMUs in one-, two- and three-car versions with a potential investment volume of EUR 1.2 billion. How many trains DB will actually order by the end of 2018 (the expiry date of the agreement) remains to be seen.

During the Innotrans, Netinera Deutschland agreed a firm order with Alstom. The FS subsidiary is ordering 63 two- and three-coach DMUs of the "Coradia Lint" type for around EUR 300 million. They are due to go into service between Frankfurt (Main) and Saarbrücken and between Koblenz and Kaiserslautern starting December 2014.

Over the past three years, DB subsidiary Westfrankenbahn and MTU Friedrichshafen have converted a Siemens Desiro with diesel-mechanical drive (Class 642) into a hybrid vehicle. The newly developed hybrid powerpack enables the kinetic energy generated when braking to be converted into electrical energy via a generator. This is stored temporarily in batteries and used for traction when required. The target is to reduce CO₂ emissions and fuel consumption by a quarter.

Special vehicles: Enjoy the view in the "Luxon"

Apart from test runs and transfers for the railway industry, Munich-based Rail-adventure GmbH also offers upmarket special trips. Come 2013, these will also include services with one of the observation cars built back in the 1960s for the DB long-



Above: Railadventure locomotive 139 558 with rolling stock for Innotrans: an RZD sleeping car, three Vectron locomotives and an Inspiro half-train for the Warsaw Metro are being hauled to Berlin on 11 September 2012 (Fulda Bridge near Baunatal-Guntershausen, photo: U. Miethe).

Right: The externally modernised and freshly repainted "Luxon" observation car is now to be seen in the design of its owner Railadventure (photo: S. Karkowski).



distance trains "Rheingold" and "Rheinpfel". The exterior of the coach which is undergoing complete refurbishment is now ready. On completion of work at the end of next year it will be marketed under the "Luxon" brand. (mr)

Below: View of the densely packed outdoor exhibition area with SBB's DPZ Plus, Stadler's Flirt for Leo Express, Škoda Regio Panter for ČD and Coradia Nordic for Skånetrafiken. On the far right is one of the three Siemens Vectron locomotives (photo: M. Rellstab).

