

Running Dynamics Measurements for an Approval of the High-Speed-Train AVE S102 up to 330km/h



AVE S102, the first train set worldwide which was approved according TSI high speed

Customer Requirement

RENFE has ordered so far 46 high speed trains type AVE S102 at a consortium formed by Bombardier and Talgo. These trains are on operation on the Spanish high speed lines. PROSE was commissioned to perform the running dynamics type testing according the European Interoperability Specification (TSI) for high speed trains for the approval of the train to operate at a speed of 330 km/h.

Realisation

PROSE performed the measurements at the power head according the normal method as defined in EN 14363 on behalf of Bombardier. Commissioned by the consortium, PROSE generated the test specification for the whole train and supervised the measurements performed by the testing team of Talgo at the coaches. Finally, PROSE generated the final test report covering the whole train.



Measuring wheel set for the measuring of the wheel-rail-force during running dynamics type test

Customer Advantage

PROSE was involved in the whole approval process since testing of the prototype train followed by the generation of the test specification, the performance of the measurements as well as the generation of the final test report for the whole train. This reduced the number of interfaces and



PROSE engineer at work in the special equipped measuring compartment

therefore risks and delays in the project.

An important fact was, that PROSE was recognised at the relevant authorities and the competence of PROSE was well accepted.

Tests with high speed trains on lines which are new as well are dominated by a high number of restrictions (availability of the lines, step by step approval to run faster because of train control system, catenary system, track condition, brake system, running behaviour, ...). The vehicle supplier as our customer has few possibilities to influence these boundary conditions. Therefore, it is important for him that the testing can take place whenever it is required.

Factsheet 2.00033

Detailed Information

Information on the Project

- Final customer: RENFE AVE
- Customer: Bombardier/Patentes Talgo
- Period: 2003 – 2006

Technical Data of the train

- Max. Speed: 330 km/h
- Power: 2 x 4'000 kW

Further References in the Project

- Support of Bombardier during approval process management of this first project world wide, which was done completely according the TSI for high speed trains
- Conception of the noise behaviour of the power head AVE S102 and performance of the noise measurements for the approval as well as to gather data for further developments of locomotives and power heads

Further References for Running Dynamics Approval Measurements

- Stadler: EMU's GTW Turbo and FLIRT in Switzerland and Germany
- Patentes Talgo and Bombardier: Gauge-changing High-speed-trains RENFE AVE S130 on normal and broad gauge in Spain in collaboration with the measuring team of Patentes Talgo
- Bombardier: Prototype of Talgo 350 in Spain (Prototype for AVE S102)
- Patentes Talgo: Prototype of gauge-changing locomotive TRAV-CA in Spain in collaboration with the measuring team of Patentes Talgo
- Fahrzeugtechnik Dessau: EMU PROTOS in Holland
- AnsaldoBreda: EMU Class 72 in Norway
- CFD: Narrow-gauge DMU in Corsica
- Freight wagon Tanoos with bogies AM III tested in Switzerland for an approval in Germany
- Track maintenance vehicles Tm 234 and Tm 232 (retrofit) in Switzerland
- Universal locomotives NSB E1 18 in Norway and VR Sr2 in Finland

Project Responsibility

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