

Project: "Two-System Vehicle Chemnitz"

Client: Stadler Rail Valencia

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Project Duration: 2012 - 2014

Project Brief:

The given task was to provide engineering assistance for the development of a two-system diesel hybrid vehicle. This vehicle concept may be implemented as a single-system light rail vehicle (750 V), as a two-system light rail vehicle (750 V / 15 or 25 kV), or as a diesel hybrid vehicle. In the case of the Chemnitz project, the diesel hybrid version was implemented, with varying entry heights for operation in BOStrab- and EBO-areas.

Brief Vehicle Description:



Model/Type: bi-directional vehicle; two-system operation (750 V / diesel)	Max. axial load: 12 t
Vehicle length: 37,2 m	Min. curve radius: 17 m
Vehicle width: 2,65 m	Gradeability: 60 ‰
Entry height / Low-floor area ratio: 405 and 570 mm above top of rail / 80 %	Multi-functional area: 2 wheelchairs + 2 buggies + 2 bikes
Total capacity (with 4 people/m ²): 244 passengers total, 103 seats	Type approval in accordance with the BOStrab / EBO

Task Description:

1. Preliminary studies:

- Analysis of infrastructure and operating requirements, as well as legal regulations, for varying applications of two-system vehicles
- Definition of parameters for vehicle development, e.g., the maximum and necessary vehicle mass and dimensions, vehicle dynamics, passenger capacities, etc.
- Definition of parameters for the running gear

2. Preparation for vehicle development:

- Drafting the functional specification document
- Drafting the technical system description documents
- Outlining the norms and regulations that must be complied with in order to adapt the vehicle concept for international markets

3. Assistance with construction and procurement:

- Cooperation with the rail operator in calibrating the functional specification document
- Drafting and reviewing the system description documents
- Providing Technical Opinions and assistance with applying for type approval and operating permits
- Initial sample inspection and subsequent vehicle inspection, incl. protocolling
- Inspection of vehicle and maintenance documents