

# CASE HISTORY

## Technical data

- Two gensets per car
- Generator output power 1100 kVA
- Continuous power supply at train line: 950 kVA
- Supply for locomotive driven trains with vehicle electrical system voltage 400 V 3 AC / 60 Hz
- 4 train lines
- Ambient temperature up to +50°C
- Relevant EN, UIC and TSI specifications taken into account

Our consortium partners:



## Generator sets – Astra/Vale (Brazil)

### The challenge

In 2012, Vale (Brazil) commissioned Romanian rail vehicle manufacturer Astra with the delivery of railway passenger cars. Self-contained generator cars located at each end of the train supply electric energy to the trainsets, which are up to 28 cars long.

The train must complete a distance of almost 1,000 km each day during a continuous operating period of 20 hours. During that time, one genset of a generator car supplies power to half of the train. The next day, the provision of the power supply is switched to the second genset of a generator car. The fuel volume is sufficient for a two-day operating period.

### Our assignment

Molinari Rail received the contract for the design and delivery of the entire engine room equipment, and is specifically responsible for the following:

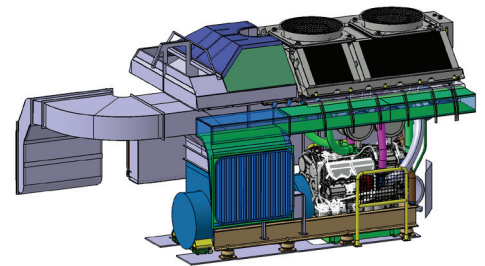
- Complete engineering of the genset cabinet
- Supply of roof cooling units
- Complete exhaust system
- Coolant and charge air lines
- Ventilation of engine room
- Air supply for power trains
- Air filtering with separator grill and fine filters

- Electrical cabinet design with cooling concept
- Type testing
- Delivery logistics

### Implementation

The railcar bodies are designed and manufactured at Astra Vagoane Calatori in Arad (Romania). This is also where the generator cars undergo final assembly and commissioning, with the support of Molinari Rail. Before that, the capacity of the entire power train is verified as part of a type test conducted at the testing laboratory at Hitzinger in Linz (Austria). The initial order consists of ten cars with a total of 20 gensets, which will be delivered between 2013 and 2014. Follow-up orders can be expected.

This contract is implemented by Molinari Rail as part of the proven consortium with Zeppelin (Caterpillar engines) and Hitzinger (generators). The group is led by Molinari Rail, who has also assumed overall project management and system responsibility.



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