



## Construction and calculation for an open coal freight wagon

### Facts and Figures

MOBEX Engineering GmbH was founded in 2011 as an engineering company in the area of rail vehicle technology and is the official representative of the Belarusian wagon construction plant OVZ in Germany. OVZ and MOBEX Engineering GmbH are currently planning to expand their business activities to Central Europe. The objective is to set up an organisation for the operation and renting of freight wagons, among other things.

### Requirements

Through a market analysis during the run-up, MOBEX and CE cideon engineering were able to ascertain the demand for coal wagons. Thus, one of the first projects to enter the market was the development of an open freight wagon for coal in the Falns category.

Using the data gathered in the market analysis and taking into account the intended purpose, CE cideon engineering drew up specifications for the vehicle as a basis for development.

Some technical challenges also cropped up. Previously developed models of this type of wagon only fulfil the structural clearance G2. However, for the intended use of this wagon across countries (e.g. Poland, France), the smaller G1 profile has to be complied with. At the same time, the vehicle-specific loading volume of 85 m<sup>3</sup> should be maintained.

The unloading hatches of the wagon are operated hydraulically by hand under the old standard. However, in the new model, the operation should be carried out pneumatically. For this purpose, the pneumatic system of the wagon had to be equipped with two additional 100 l containers.

The complete development phase, from preparation of the functional specifications to the completion of the calculation and maintenance documentation, had to be carried out by CE cideon engineering.

### Implementation

CE cideon engineering GmbH initially carried out a patent research, since there are numerous patents in the field of bulk freight wagons which may not be violated. A concept and functional specification of the vehicle was subsequently drawn up together with the customer. Based on this, the construction was carried out with mathematical proof of strength through FEM analysis. The coordination of sub-contractors (including the brakes and pneumatic damper actuator) was also taken care of by CE cideon engineering. Finally, the technical documentation according to TSI WAG is being prepared.

### Customer benefits

- Accelerated market entry
- Complete development from one provider
- Utilisation of CE cideon engineering experts as needed, e.g. in FEM, approval and technical documentation

### CE cideon engineering GmbH & Co. KG

Tzschirmerstraße 5a  
D-02625 Bautzen  
Office +49(0)3591 3744-60  
Fax +49(0)3591 3744-80

Olbernhauer Straße 5  
D-09125 Chemnitz  
Office +49(0)371 77415-10  
Fax +49(0)371 77415-39

Handelsplatz 1  
D-04319 Leipzig  
Office +49(0)341 652336-0  
Fax +49(0)341 652336-12

### CE cideon engineering Schweiz AG

Aeschengraben 6  
CH-4051 Basel  
Office +41(0)61 20577-50  
Fax +41(0)61 20577-59