Prototype of an improved container wagon enabling loading/unloading of 45' containers

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PU	Public	**X**
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RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Involved partners / Version control

Following project partners have been involved in the elaboration of this document:

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1 Background and objectives

1.1 Wagon types in rail freight transport

The efficiency of non-containerised single wagon rail freight often suffers from empty car transports: the needed wagon type for the transportation of goods differs depending on the respective origin/destination relation.

Because of this, freight wagons in single wagon load production schemes run a lot of their mileage empty, without payload. If the amount of empty mileage could be reduced by more flexible wagons able to carry different cargo, single wagon load freight traffic could be much more efficient.

1.2 Need for 45' containers

On today standard 60' container wagons 45', containers are always placed in the middle of the wagon. With this position there is not enough space to move the fork lift in front of the container to charge or discharge the container in a siding. To enable this concept for 45' containers additional container spigots are needed to place the container on the wagon end.

1.3 The Wascosa flex freight system©

The multifunctional car is based on two elements: a core platform and a superstructure solution; a range of removable, swappable and stackable bodies for a wide variety of cargo. The core platform is a full-featured 60' light container car that can be used without restrictions for transporting a variety of containers in intermodal traffic. With a tare weight of little over 17 tonnes, the car delivers the highest payload in its class in Europe.

Figure 1: General concept of Wascosa flex freight system©

Thanks to the system's modularity, the core platform can be equipped with a range of compatible superstructure solutions for particular tasks and in response to seasonal fluctuations in the freight market. The available superstructures range from open and covered containers to flatbed-car and vehicle transporter superstructures; other superstructures can be added at any time for the haulage of standard and specialised freight.

1.4 Objectives and development concept

The benefits of the WASCOSA flex freight system® are manifold: on one hand, it improves standardisation of a rail transport company's car fleet by reducing its complexity, thus improving the fleet's utilisation, productivity and overall operating efficiency while reducing its size at the same time. The flexible utilisation of the container cars and superstructures according to the type of freight allows instant responses to seasonal or cyclical fluctuations. Additionally, the WASCOSA flex freight system® enables significant cost savings: storage charges, fixed service costs as well as maintenance overheads are decreasing.

In order to increase the possible applications in single wagon load traffic the WASCOSA flex freight system® needs to be equipped with

- a fully accessible floor and
- additional container spigots to load 45' containers at the wagon end (on standard 60' wagon only in the middle of the wagon).

With this equipment 45' containers can be charged/discharged with a fork lift driving on the wagon. When the 45' container is situated in the middle of the wagon (standard 60' wagon) there is not enough space to move the fork lift in front of the container on the wagon floor.

Figure 2: 60' container on wagon

2 Container wagon suitable for 45' containers

2.1 Concept

The main characteristics of the modified wagon are:

- Integrated, fully accessible floor
- Additional container spigots to place 45' containers at the wagon end.

2.2 Technical data

The main technical characteristics are summarised in the following figures below.

Figure 3: Design study additional lateral beams

Parameter	Dimension and Related standards
Container wagon	60'
Fully accessible floor	Integrated into the wagon
Additional container spigots	45' container position at wagon end

Figure 4: Design study additional lateral beams

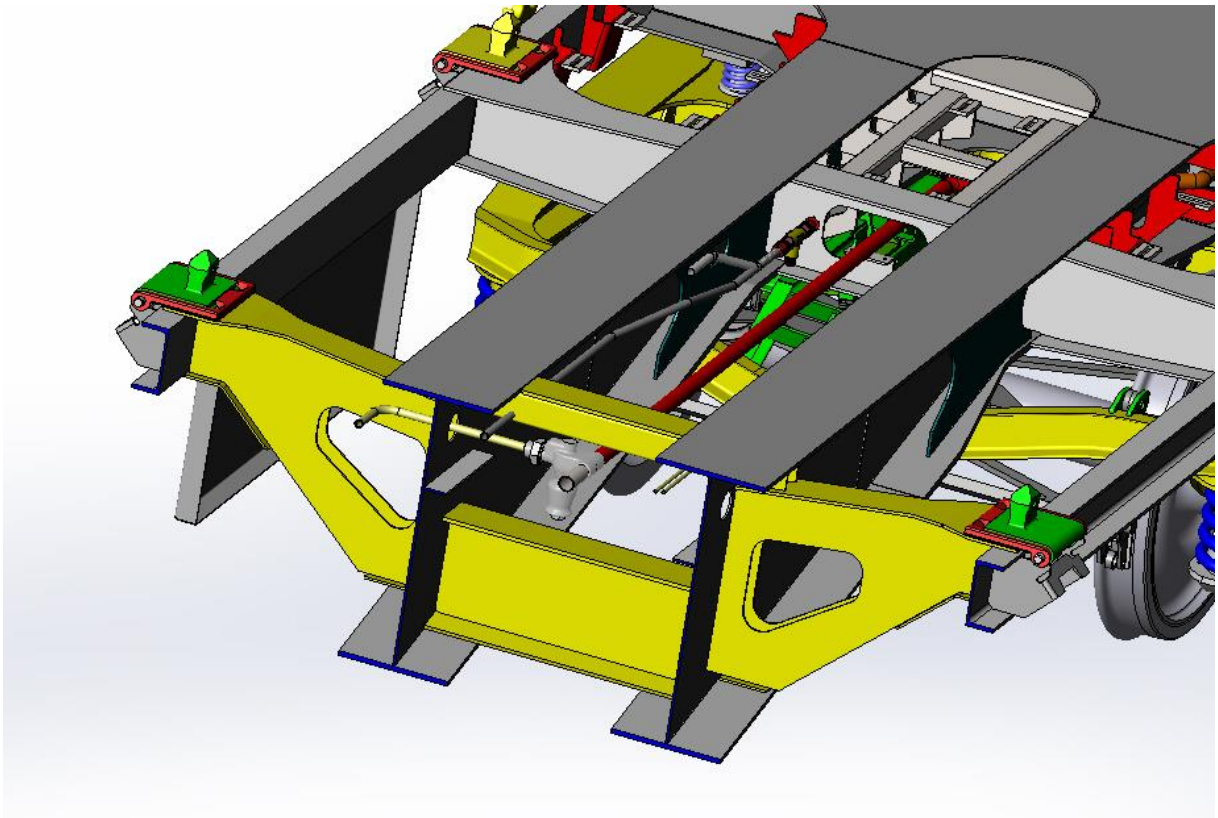


Figure 5: Design study supports for integrated floor

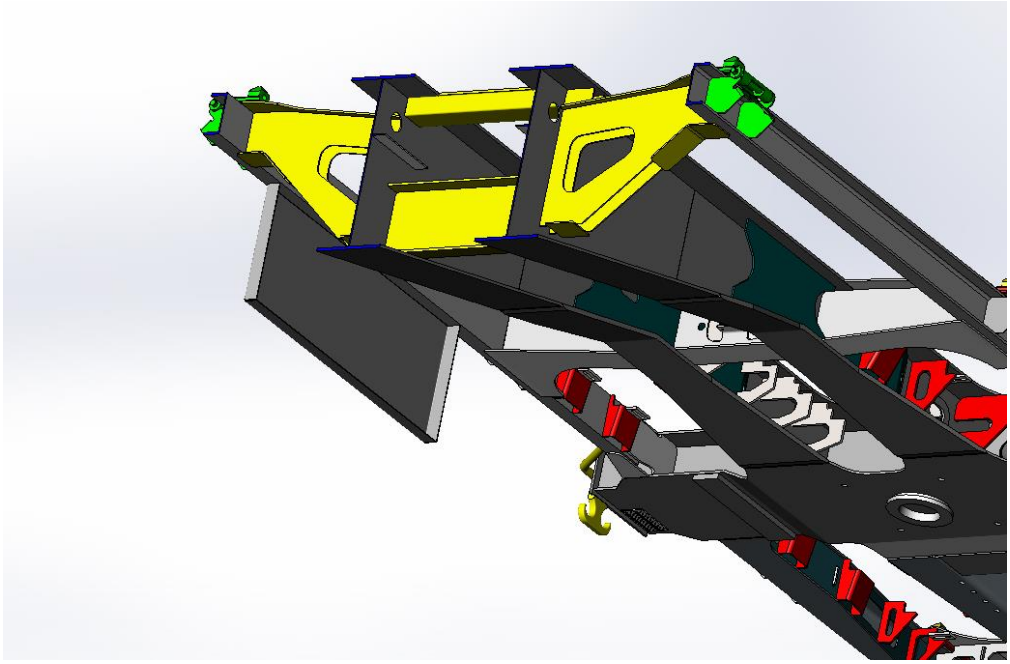
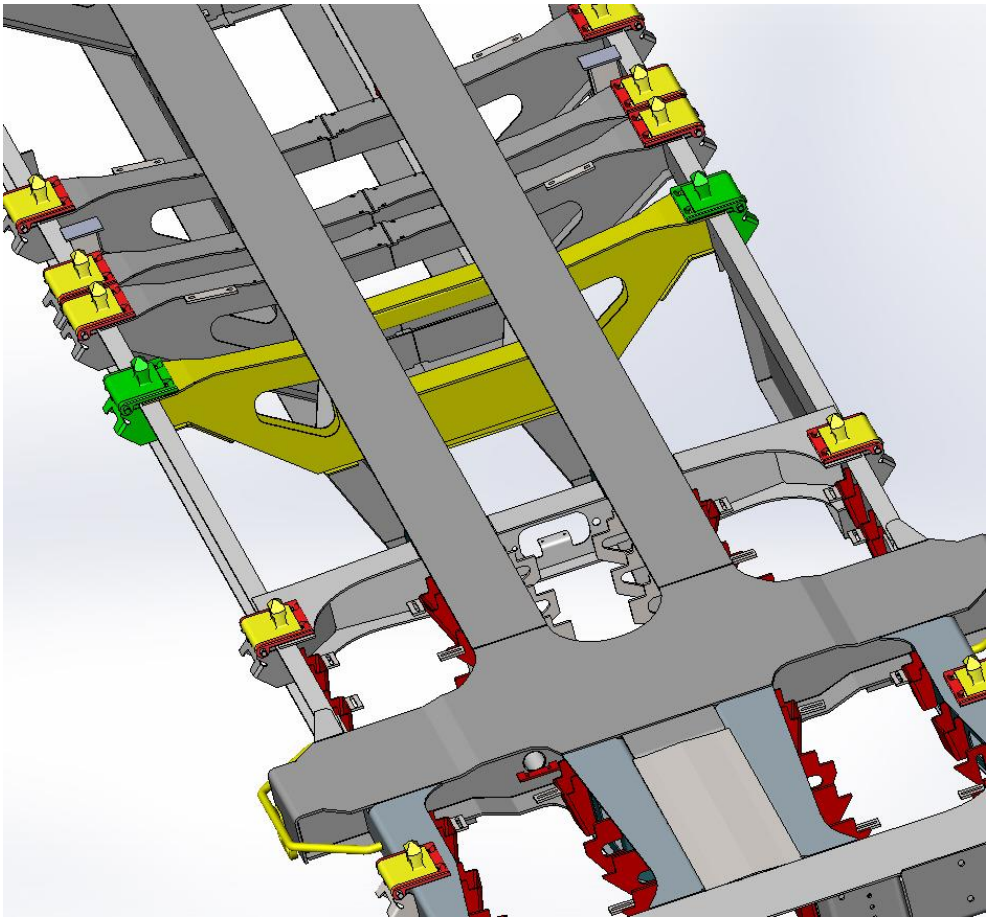


Figure 6: Design study additional container spigots

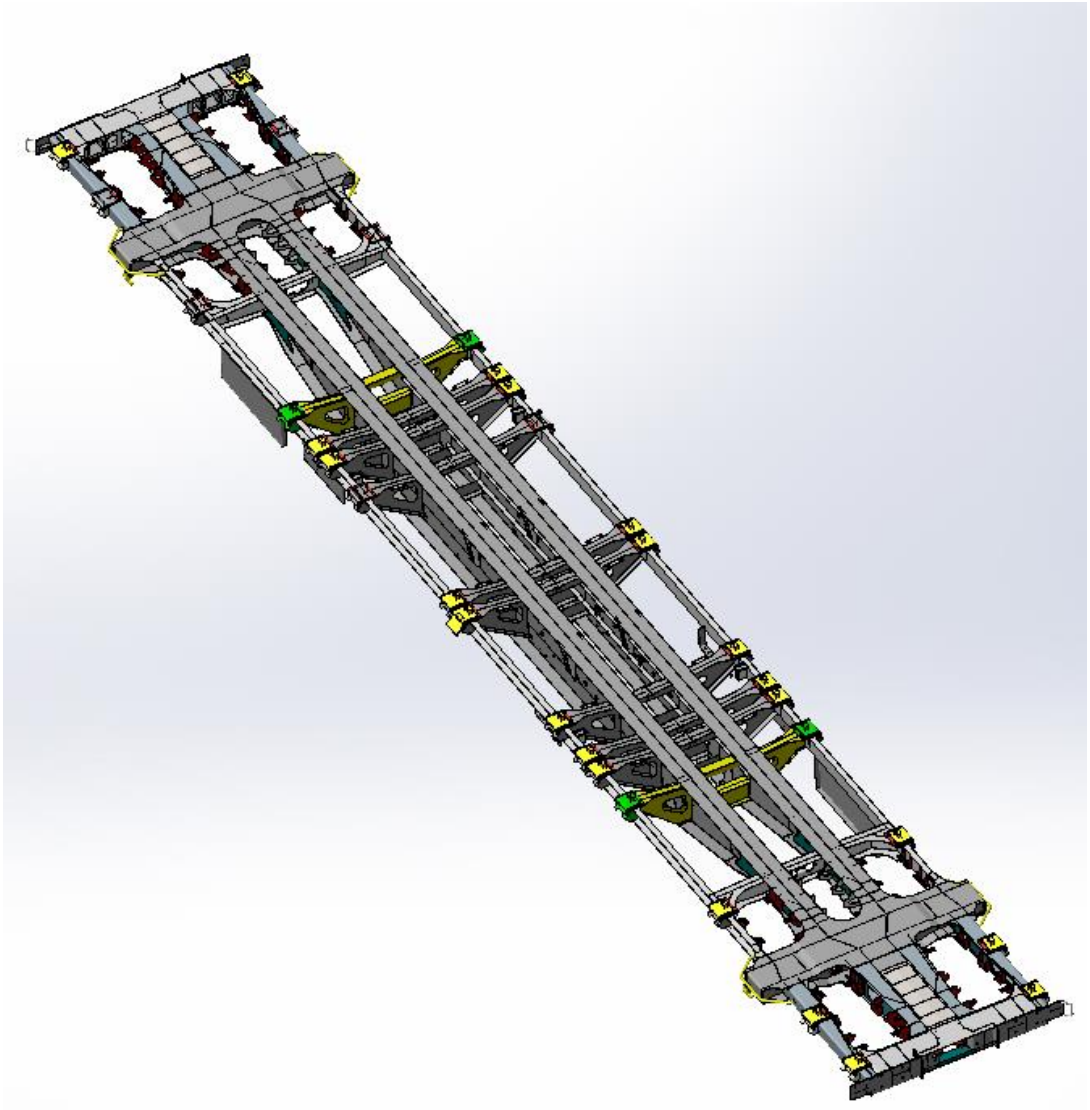


2.3 Documentation of prototype delivery

For the development of the prototype wagon the following steps have been carried out:

May 2015:	First concept elaborated
June 2015:	Technical concept finalised
July 2015:	Tender process started
August 2015:	Manufacturing company selected / Subcontract signed with Fahrzeugwerke Mirausstrasse, Germany
September 2015:	Technical details in collaboration with manufacturer specified
October/November 2015:	Production of prototype wagon
December 2015	Prototype delivery to Wascosa

Figure 7: 60' wagon with additional container spigots to load 45' container



2.4 Outlook to training/demonstration

Testing of the prototype wagon will start in December 2015 with the Swiss company Migros.