



European Rail
Infrastructure Managers



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EIM POSITION PAPER

ROLLING STOCK REQUIREMENTS IN ORDER TO FACILITATE RESCUE COUPLING

Rolling Stock Requirements in Order to Facilitate Rescue Coupling

Introduction:

The EIM position regarding rolling stock requirements in order to facilitate rescue in relation to the rolling stock TSI is the following:

Infrastructure managers often have the responsibility for rescue in the meaning of clearing lines from vehicles that for some reason need to be moved. The ability to clear lines from vehicles that for some reason need to be moved in an efficient manner is important both for safety reasons and to ensure reliability and availability.

Vehicle ends that during normal operation may be the leading or rear end of the train shall be compatible with a UIC coupling. All additional equipment (if necessary) to do such a coupling in one of the train-ends shall always be available in the train. The coupling shall, with some margin for jerking, at least have capacity for hauling of the train in all sections of the line.

To be able to move the train there shall be a facility to control the brakes.

The rolling stock shall have marked lifting points and be prepared for lifting and re-railing with equipment normally used for this proposed outside the workshop.

Overview:

In this paper EIM explains;

1 Why efficient rescue is important

The ability to clear lines from vehicles that for some reason need to be towed or re-railed in an efficient manner is important both for safety reasons and to ensure reliability and availability.

Reliability and availability

It is not uncommon that trains need to be towed due to the locomotive or power unit breaking-down for various reasons or due to problems caused by the infrastructure such as a failed catenary. The section of line and number of trains influenced (and then also passengers and freight customers of the railway) increases with the duration of the blockage. In order to be able to quickly restore normal traffic it is necessary that towing of vehicles and clearance of the line can be facilitated in an efficient manner. The importance of this increase with traffic density. It also may be even more important on single lines both because traffic is then completely blocked and because access to the stopped train with vehicle equipped with a suitable non-standard coupling is then even more easily delayed/blocked by other trains on the line.

Safety

Efficient rescue is also of importance for safety reasons. In case passengers have to wait in a broken down train until it is towed to a safe location for evacuation, their comfort (air quality, temperature, sanitary conditions) and mood will deteriorate in relation to time and increase risk that they start to act rashly. If passengers start to spontaneously evacuate the train additional risks arise.

2 What rolling stock requirements are necessary to facilitate rescue

In the past rescue was relatively simple to organise. There was only one company responsible for the entire railway system in the country and this company could specify the technical features for the rolling stock so that they were compliant with each other. The vehicles used for international transport were very standardised and used UIC compliant couplings.

The situation today and in the future for the European railway system with an internal European market with many stakeholders and diversified technical solutions makes the rescue a more complex issue. It is often the Infrastructure managers that have the responsibility for rescue. Infrastructure managers have small or no possibilities to influence the technical features of the rolling stock that is used. Therefore it is important that the TSIs for rolling stock include sufficient rolling stock requirements in order to ensure that efficient rescue is possible to facilitate.

The risk of moving a rescued train without active brakes increases with steepness and length of gradients on the line. This is because hazards in the case of a runaway train increases. Because an increasing part of the braking force / wheel-rail adhesion on axles with brakes is used to hold back the part of the train without brakes, it is independent of speed when downhill steepness increases. This makes the method of compensating with lower speed when part of the train is without brakes less efficient until it is inadequate. The regulations and conditions for towing are to be defined in TSI Operations.

The rolling stock requirements that need to be specified in the TSIs in order to facilitate efficient line clearance are:

Vehicle ends that during normal operation may be leading or rear end of the train shall be compatible with UIC coupling. All additional equipment (if necessary) to do such a coupling in one of the train-ends shall always be available in the train. The coupling shall, with some margin for jerking, at least have capacity for hauling of the train in all sections of the line.

To be able to move the train there shall be a facility to operate the brakes.

The rolling stock shall have marked lifting points and be prepared for lifting and re-railing with equipment normally used for this proposed outside the workshop.

Conclusion:

It is necessary to specify rolling stock requirements for rescue, in the meaning of clearing lines from vehicles that for some reason need to be moved, in the rolling stock TSIs. The reason for this is that is that efficient rescue is important for safety, reliability and availability. Rescue is a complex issue with many stakeholders and the rolling stock has diversified technical solutions for coupling systems. The entity responsible for rescue will most likely not be able to influence the technical features of the rolling stock.

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To be able to move the train there shall be a facility to control the brakes.

The rolling stock shall have marked lifting points and be prepared for lifting and re-railing with equipment normally used for this proposed outside the workshop.

The regulations and conditions for towing should be defined in TSI operations.