

OTIF



**ORGANISATION INTERGOUVERNEMENTALE POUR
LES TRANSPORTS INTERNATIONAUX FERROVIAIRES**

**ZWISCHENSTAATLICHE ORGANISATION FÜR DEN
INTERNATIONALEN EISENBAHNVERKEHR**

**INTERGOVERNMENTAL ORGANISATION FOR INTER-
NATIONAL CARRIAGE BY RAIL**

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Subject: Stresses which occur during carriage by rail in accordance with 6.8.2.1.2

Proposal transmitted by the International Union of Private Wagons (UIP)

At the 9th session of the working group on tank and vehicle technology held in Berne on 14 and 15 May 2008, UIP submitted document OTIF/RID/CE/GT/2008/3 concerning the “mechanical strength of rail tank-wagons”.

The rule currently to be found in 6.8.2.1.2, according to which

“Tank-wagons shall be constructed [so] as to be capable of withstanding, under the maximum permissible load, the stresses which occur during carriage by rail. As regards these stresses, reference should be made to the tests prescribed by the competent authority”

causes problems of interpretation between the industry and the approval authorities because of differences in how the TSIs and European standards in the rail sector allocate the responsibility for approving rail tank-wagons. UIP would like to discuss this in the RID Committee of Experts or in the working group on tank and vehicle technology, so that if necessary, proposals can be made to clarify the text in RID.

The working group supported the document in principle and asked UIP to submit a specific proposal.

Since the entry into force of EN standard 12663 “Railway applications – Structural requirements of railway vehicle bodies” in 2002, and at the latest when the TSIs (Technical Specifications for Interoperability) enter into force, this standard governs the design and testing of railway vehicles from the point of view of static and dynamic stresses. In addition to dealing with the railways’ (ERRI)

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requirements, the standard also requires that a vehicle's fatigue behaviour be taken into account.

EN standard 12663 requires that calculations must be carried out to assess cases of permanent load, but if verified calculation models are available, it also permits calculation of the stresses in place of the former static and dynamic test programme.

Instead of the current imprecise wording in RID, a reference to this standard and to the general conditions should be included in 6.8.2.1.2 to make its application compulsory and uniform. In order to rule out derogations from the vehicle regulations (TSIs) with regard to the version that is valid, it would be an advantage to make reference to the version currently applicable.

Furthermore, responsibility for assessing the tests or calculations would have to be established. For the European Economic Area, the tests or calculations referred to here are governed by European standard EN 12663, as already mentioned above. According to the rules of the TSIs, it is the responsibility of the accredited "notified bodies" in accordance with Directive 2001/16/EC to assess the tests for checking the structural strength of the vehicle prescribed in the standard. It makes little sense to have a parallel way of dealing with the tank/vehicle interface. As it is primarily these bodies which have the main responsibility and usually also the competence to assess these vehicle-related tests, these bodies should be assigned the responsibility in order to avoid the duplication of tests.

These two points of clarification would satisfy the basic intention of the proposal. However, other discrepancies in the detail must be assumed, and these could also be dealt with here:

While the maximum permissible stresses and a design depending on the working pressure referred to in RID are in accordance with the calculation code cited in EN standard 14025, the regulations surrounding EN standard 12663 represent another set of self-contained design regulations adapted to the requirements of railway operations (e.g. fatigue resistance) and the corresponding maximum permissible stresses. Amalgamation of the requirements and calculation procedures must be ruled out from a technical point of view.

Proposal for amendment

In this situation, it is proposed that 6.8.2.1.2 be amended to read as follows:

"6.8.2.1.2 Tank-wagons shall be constructed so as to be capable of withstanding, under the maximum permissible load, the stresses which occur during carriage by rail. This requirement shall be considered as satisfied if the testing body, in accordance with the provisions for the vehicle, has, by means of tests or calculations, tested and certified that the tank is of sufficient strength at the points where it is attached to the wagon, on the basis of the currently applicable version of EN 12663. In order to do this, real load assumptions from use in transport (pressure, temperature) and the maximum permissible strength values within the meaning of EN standard 12663 shall be taken as the basis."

Technical safety assessment

Such a rule would define clear and generally applicable requirements concerning the stresses occurring in rail transport that have to be considered, and would unambiguously clarify the question of responsibility. In addition, such a rule, with a reference to EN standard 12663, would mean that permanent load behaviour also has to be considered. This clearly has a positive technical safety aspect, particularly at the points where the tank is attached to the subframe (saddle).
