Raudteealased rakendused. Nõuded raudteeveeremi kerekonstruktsioonidele. Osa 1: Vedurid ja reisiveerem (ning alternatiivne meetod kaubavagunitele)

Railway applications - Structural requirements of railway vehicle bodies - Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
See Eesti standard EVS-EN 12663-1:2010 sisaldab Euroopa standardi EN 12663-1:2010 ingliskeelset teksti.	This Estonian standard EVS-EN 12663-1:2010 consists of the English text of the European standard EN 12663-1:2010.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 03.03.2010.	Date of Availability of the European standard is 03.03.2010.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Railway applications - Structural requirements of railway vehicle bodies - Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)

Applications ferroviaires - Prescriptions de dimensionnement des structures de véhicules ferroviaires - Partie 1 : Locomotives et matériels roulants voyageurs (et méthode alternative pour wagons)

Bahnanwendungen - Festigkeitsanforderungen an Wagenkästen von Schienenfahrzeugen - Teil 1: Lokomotiven und Personenfahrzeuge (und alternatives Verfahren für Güterwagen)

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Foreword

This document (EN 12663-1:2010) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This European Standard is part of the series EN 12663, *Railway applications — Structural requirements of railway vehicle bodies*, which consists of the following parts:

— *Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)*

— *Part 2: Freight wagons*

This document, together with EN 12663-2, supersedes EN 12663:2000.

The main changes with respect to the previous edition are listed below:

a) the standard has been split into two parts. EN 12663-1 contains validation methods mainly for locomotives and passenger rolling stock but as an alternative to EN 12663-2 also for freight wagons. EN 12663-2 contains validation methods for freight wagon bodies and associated specific equipment based on tests;

b) locomotives have been treated in a separate structural design category;

c) the demonstration of static strength and structural stability have been based on utilisation;

d) the design masses have been differently defined and referenced to EN 15663;

e) tensile forces at coupler attachments have been given for all structural design categories;

f) proof load cases for body to bogie connection have been defined separately;

g) loads for joints of articulated units have been added;

h) fatigue loads for longitudinal acceleration of the vehicle body have been added;

i) a validation programme has been added;

j) an informative annex for treatment of local stress concentrations in analyses has been added.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia,

Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The structural design of railway vehicle bodies depends on the loads they are subject to and the characteristics of the materials they are manufactured from. Within the scope of this European Standard, it is intended to provide a uniform basis for the structural design of the vehicle body.

The loading requirements for the vehicle body structural design and testing are based on proven experience supported by the evaluation of experimental data and published information. The aim of this European Standard is to allow the supplier freedom to optimise his design whilst maintaining requisite levels of safety.

1 Scope

This European Standard specifies minimum structural requirements for railway vehicle bodies.

This European Standard specifies the loads vehicle bodies should be capable of sustaining, identifies how material data should be used and presents the principles to be used for design validation by analysis and testing. This European Standard applies to locomotives and passenger rolling stock. EN 12663-2 provides the verification procedure for freight wagons and also refers to the methods in this standard as an alternative for freight wagons.

The railway vehicles are divided into categories which are defined only with respect to the structural requirements of the vehicle bodies. Some vehicles may not fit into any of the defined categories; the structural requirements for such railway vehicles should be part of the specification and be based on the principles presented in this European Standard.

The standard applies to all railway vehicles within the EU and EFTA territories. The specified requirements assume operating conditions and circumstances such as are prevalent in these countries.

In addition to the requirements of this European Standard the structure of all vehicles associated with passenger conveyance may generally be required to have features that will protect occupants in the case of collision accidents. These requirements are given in EN 15227.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature*

EN 13749, *Railway applications — Wheelsets and bogies — Methods of specifying structural requirements of bogie frames*

EN 15663, *Railway applications — Definition of vehicle reference masses*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
railway vehicle body
main load carrying structure above the suspension units including all components which are affixed to this structure which contribute directly to its strength, stiffness and stability

NOTE Mechanical equipment and other mounted parts are not considered to be part of the vehicle body though their attachments to it are.

3.2
equipment attachment
fastener and any associated local load carrying substructure or frame which connect equipment to the vehicle body