

SLOVENSKI STANDARD
SIST EN 15663:2009
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Železniške naprave - Določitev mase železniškega vozila

Railway applications - Definition of vehicle reference masses

Bahnanwendungen - Fahrzeugmassedefinitionen

Applications ferroviaires - Définitions de la masse des véhicules

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ICS:

45.060.01	Železniška vozila na splošno	Railway rolling stock in general
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EUROPEAN STANDARD

EN 15663

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English Version

Railway applications - Definition of vehicle reference masses

Applications ferroviaires - Définitions des masses de
référence des véhicules

Bahnanwendungen - Fahrzeugmassedefinitionen

This European Standard was approved by CEN on 23 April 2009.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 15663:2009) 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of an identical text or by endorsement, at the latest by November 2009, and conflicting national standards shall be withdrawn at the latest by November 2009.

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 standard aims to support the TSIs and European standards on the calculation of vehicle masses.

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 2008/57/EC.

For relationship with EU Directive 2008/57/EC, see informative Annex ZA, which is an integral part of this document.

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, 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.

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Introduction

To define the design, testing and operation of vehicles in general and their main constituent parts it is necessary to clearly specify the associated states of loading. In the past different descriptions and definitions of vehicle masses and load states have been given in national and international standards and the meaning has been different. With the introduction of Interoperability and the increased importance of European standards it has become necessary to have a common set of reference masses on which the assessment of loads and performance can be based. This European Standard provides such a set of vehicle reference masses and describes how each is to be derived.

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1 Scope

The purpose of this document is to define a set of reference masses that can be used as a common starting point for specifying the requirements for the design, testing, delivery acceptance, marking and operation of rail vehicles. It is not the intention of this European Standard to change the dimensioning of vehicle system components by the definition of these common reference masses. However, when the relevant standards are revised or new ones developed, the masses to be used in these vehicle system component standards as the basis for the design should be expressed as a function of the reference mass states defined in this standard. Until the standards are changed the existing criteria continue to apply.

This document covers all types of rail vehicles.

For the purpose of vehicle mass definitions rolling stock is divided into three vehicle groups which are:

- high speed and other long distance trains;
- passenger vehicles other than high speed and long distance trains, including metro and tramway;
- freight vehicles (wagons and freight motored units).

Locomotives are treated as passenger vehicles without payload.

The specification of the technical requirements of the railway vehicle should contain the information to which vehicle group it belongs.

NOTE “Long distance” includes all passenger trains not intended to be used on commuter and suburban services. In this standard, commuter is understood as: for the French network: RER; for the German network: S-Bahn.

The masses defined in this European Standard are as follows (see Clause 2):

- a) dead mass;
- b) design mass;
 - 1) design mass, in working order;
 - 2) design mass under normal payload;
 - 3) design mass under exceptional payload;
- c) operational mass;
 - 1) operational mass, in working order;
 - 2) operational mass under normal payload.

These masses are defined with respect to the whole vehicle, but they can also apply to a specific system or component.

2 Terms and definitions

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

EN 15663:2009 (E)**2.1 Mass definitions****2.1.1****dead mass**

mass of the vehicle in the "as built" condition without consumables and without staff

NOTE Dead mass corresponds to the mass of a complete vehicle as built with all permanently installed components including parts subject to wear in the "new state" (e.g. discs, brake pads, wheels...) but with no consumables (e.g. combustibles, sand, food and beverage, clean and waste water). It includes the interior fittings and furniture, operating fluids (e.g. insulating fluids, cooling fluids, heating fluids, transmission fluids lubricants, batteries electrolyte...), catering equipment (e.g. utensils, cutlery and table linen...), tools and emergency equipment. See also Clause 3.

2.1.2**design mass**

mass to be considered for the design of the vehicle and its components

2.1.2.1**design mass in working order**

mass of the vehicle equipped with all the consumables and occupied by all the staff, which it requires in order to fulfil its function but empty of any payload (i.e. dead mass + consumables + staff)

NOTE 1 Consumables are defined in Table 2 column A.

NOTE 2 This state is also described as the unladen mass or tare weight.

2.1.2.2**design mass under normal payload**

design mass of the vehicle in working order (plus the normal design payload)

NOTE The normal design payload is defined in Tables 3, 4 and 5, columns A. It is typical of the highest payload seen on a regular basis and it is determined by the type of rolling stock and / or the level of comfort associated with the type of service being provided.

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2.1.2.3**design mass under exceptional payload**

design mass of the vehicle in working order plus the exceptional payload

NOTE The exceptional payload is defined in Tables 3, 4 and 5, columns A. It is determined by the type of rolling stock and it is the maximum payload that can be transported and will be experienced only under exceptional conditions (e.g. exceptional number of passengers). It represents the design limit for operation of the vehicle.

2.1.3**operational mass**

mass representing the state of the vehicle or whole train in average operational conditions that is appropriate for the assessment of operational issues (see note in 2.1.3.2)

2.1.3.1**operational mass in working order**

mass of the vehicle with an average level of consumables and occupied by all the staff, which it requires in order to fulfil its function but empty of any payload (i.e. dead mass plus average consumables plus staff minus half the wear allowance of the parts subject to wear)

NOTE Average consumables are defined in Table 2 column B.

2.1.3.2**operational mass under normal payload**

operational mass of the vehicle in working order plus the normal operational payload

NOTE 1 The normal operational payload is defined in Tables 3, 4 and 5, columns B. It is determined by the type of rolling stock and / or the level of comfort associated with the type of service being provided.

NOTE 2 This state may be used to determine such track access conditions as scheduling, energy consumption, vehicle marking, nominal static axle load etc, and LCC calculation.

NOTE 3 Table 1 summarises the relationships between the masses defined in this standard.

Table 1 — Relationship between masses defined in this standard

	“Design mass”	“Operational mass”
Dead mass	Vehicle in the “as built” condition without consumable and without staff	
Mass in working order	Dead mass plus consumables plus staff (See Table 2 – column A)	Dead mass plus average consumables plus staff minus half the wear allowance of the parts subject to wear (See Table 2 – column B)
Mass under normal payload	Design mass in working order plus normal design payload (see Tables 3, 4 and 5 columns A)	Operational mass in working order plus normal operational payload (see Tables 3, 4 and 5 columns B)
Mass under exceptional payload	Design mass in working order plus exceptional payload (see Tables 3, 4 and 5 columns A)	Not applicable

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2.2 Other terms

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2.2.1

luggage compartment

closed area, for the carriage of luggage and goods, which is not intended for the transport of passengers

2.2.2

luggage area

area in passenger saloon or vestibule provided specifically for passengers to store luggage and which cannot be used as a standing area

NOTE Overhead racks are not regarded as luggage area.

2.2.3

catering area

area without fixed seats where passengers remain while receiving a service (e.g. bar, or bistro)

NOTE See Clause 5 for guidance how to determine this area.

2.2.4

standing area

unobstructed area which can be used by passenger (e.g. vestibule, corridor, stairways, wheelchair area...)

NOTE See Clause 5 for guidance how to determine this area.