SLOVENSKI STANDARD
oSIST prEN 15746-1:2016

01-februar-2016

Železniške naprave - Zgornji ustroj - Dvopotna železniška vozila in oprema - 1. del: Tehnične zahteve za vožnjo in delovanje

Railway applications - Track - Road rail machines and associated equipment - Part 1: Technical requirements for travelling and working

Bahnanwendungen - Oberbau - Zwei-Wege Maschinen und zugehörige Ausstattung - Teil 1: Technische Anforderungen an das Fahren und den Arbeitseinsatz

Ta slovenski standard je istoveten z: **prEN 15746-1**

ICS:

45.060.01	Železniška vozila na splošno	Railway rolling stock in general

oSIST prEN 15746-1:2016 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 15746-1

December 2015

ICS 93.100

Will supersede EN 15746-1:2010+A1:2011

English Version

Railway applications - Track - Road rail machines and associated equipment - Part 1: Technical requirements for travelling and working

Bahnanwendungen - Oberbau - Zwei-Wege Maschinen und zugehörige Ausstattung - Teil 1: Technische Anforderungen an das Fahren und den Arbeitseinsatz

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN 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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword

This document (prEN 15746-1:2015) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 15746-1:2010+A1:2011.

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 Directives.

For relationship with EU Directives, see informative Annexes ZA, ZB, or ZC, which are an integral part of this document.

EN 15746, *Railway applications — Track — Road-rail machines and associated equipment*, is currently composed with the following parts:

— *Part 1: Technical requirements for running and working*;

— *Part 2: General safety requirements*;

— *Part 3: Technical requirements for running* [currently at Enquiry stage];

— *Part 4: Technical requirements for running, travelling and working on urban rail* [currently at Enquiry stage].

Introduction

This European Standard was prepared to meet the essential requirements of EU Directives to facilitate an open market for goods and services.

This document is the first of a series of four parts of the European Standard: Railway applications – Track – Road-rail machines and associated equipment, dealing with railway specific risks of the road-rail machines when running, travelling and working on railway infrastructures:

— Part 1 covers the technical requirements for the machines in working and travelling modes, and is applicable for all machines.

— Part 2 covers the safety requirements for the machines in working and travelling modes; this is a harmonized standard with the European Machinery Directive 2006/42/EC.

— Part 3 covers the essential requirements for the machines that have a running mode and run on tracks within the scope of the Railway Directive 2007/58/EC; this is a harmonized standard with the Railway Interoperability Directive 2008/57/EC and its associated Technical Specifications for Interoperability (TSI).

— Part 4 covers the technical requirements for the machines that have a running mode on urban rail and/or for machines intended to have working and travelling modes on urban rail.

Part 1 defines requirements for approval of the machine for use on the railway, depending on the decision of the Infrastructure Manager or National rules the assessment of conformance could be by the Infrastructure Manager concerned, by a third party assessor or declaration of conformity by the manufacturer.

Part 2 defines requirements for the machine to be declared conformant by the manufacturer, except in the case of machines classified under Annex 4 of the Machinery Directive, which require a conformity check in conjunction with a notified body.

Part 3 defines requirements for running on the European railway network, assessment of conformity is by a notified body as prescribed in the Railway Interoperability Directive.

Part 4 defines requirements for approval of the machine for use on urban rail, depending on the decision of the controller of the network or National rules the assessment of conformance could be by the urban rail controller concerned, by a third party assessor or declaration of conformity by the manufacturer.

The risks which exist in all mechanical, electrical, hydraulic, pneumatic and other components of machines and which are dealt with in the relevant European Standards are not within the scope of this European Standard. Where necessary, references are made to appropriate standards of this type.

1 Scope

1.1 General

This European Standard deals with the technical requirements to minimize the specific railway hazards of self-propelled road-rail machines – henceforward referred to as machines – and associated equipment, which can arise during the commissioning, operation and maintenance of the machines when carried out in accordance with the specification given by the manufacturer or his authorized representative.

These risks are normally common regardless of the track gauge however additional requirements can apply for travelling and working on infrastructures with narrow gauge or broad gauge lines, railways utilizing other than adhesion between the rail and rail wheels and underground infrastructures.

This European Standard is also applicable for machines and associated equipment that in working configuration are partly supported on the ballast or the formation.

This European Standard does not apply to the following:

— the requirements for quality of the work or performance of the machine;

— the specific requirements established by the machine operator for the use of machines, which will be the subject of negotiation between the manufacturer and the infrastructure manager;

— running and working while not on rails;

— separate machines temporarily mounted on machines and associated equipment;

— demountable machines as defined in 3.2;

— trailers as defined in 3.3, including road-rail trailers.

Vehicles which are not track guided themselves but have attachments that are track guided are not road rail machines.

The requirements within this European Standard are amended and added to by the requirements in Part 4 of this series of standards for machines designed and intended to use urban rail.

This European Standard does not establish the additional requirements for the following:

— operation subject to special rules, e.g. potentially explosive atmospheres;

— hazards due to natural causes, e.g. earthquake, lightning, flooding;

— working methods;

— operation in severe working conditions requiring special measures, e.g. work in tunnels or in cuttings, extreme environmental conditions such as: freezing temperatures, high temperatures, corrosive environments, tropical environments, contaminating environments, strong magnetic fields;

— hazards due to errors in software;

— hazards occurring when used to handle suspended loads which may swing freely.

For a road-rail machine it is assumed that an EU road permissible host vehicle will offer an accepted safety level for its designed basic functions before conversion. Unless explicitly stated otherwise in a particular clause this specific aspect is not dealt with in this European Standard.

Other track construction and maintenance machines used on railway tracks are dealt with in other European Standards, see Annex G.

1.2 Validity of this European Standard

This European Standard applies to all machines which are ordered one year after the publication date by CEN of this European Standard.

2 Normative references

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

EN 280, *Mobile elevating work platforms — Design calculations — Stability criteria — Construction — Safety — Examinations and tests*

EN 286-3, *Simple unfired pressure vessels designed to contain air or nitrogen — Part 3: Steel pressure vessels designed for air braking equipment and auxiliary pneumatic equipment for railway rolling stock*

EN 286-4, *Simple unfired pressure vessels designed to contain air or nitrogen — Part 4: Aluminium alloy pressure vessels designed for air braking equipment and auxiliary pneumatic equipment for railway rolling stock*

EN 791, *Drill rigs — Safety*

EN 13309, *Construction machinery — Electromagnetic compatibility of machines with internal power supply*

EN 13715, *Railway applications — Wheelsets and bogies — Wheels — Tread profile*

EN 14033-1:2011, *Railway applications — Track — Railbound construction and maintenance machines — Part 1: Technical requirements for running*

EN 14033-2:2008+A1:2011, *Railway applications — Track — Railbound construction and maintenance machines — Part 2: Technical requirements for working*

EN 14363:2005, *Railway applications — Testing for the acceptance of running characteristics of railway vehicles — Testing of running behaviour and stationary tests*

EN 14601, *Railway applications — Straight and angled end cocks for brake pipe and main reservoir pipe*

EN 15273-2:2013, *Railway applications — Gauges — Part 2: Rolling stock gauge*

EN 15528, *Railway applications - Line categories for managing the interface between load limits of vehicles and infrastructure*

EN 15566, *Railway applications - Railway rolling stock - Draw gear and screw coupling*

prEN 15746-2:2015, *Railway applications — Track — Road-rail machines and associated equipment — Part 2: General safety requirements*

prEN 15746-3:2015, *Railway applications — Track — Road-rail machines and associated equipment — Part 3: Technical requirements for running*

prEN 15746-4:2015, *Railway applications — Track — Road-rail machines and associated equipment — Part 4: Technical requirements for running, travelling and working on urban rail*

EN 15954-1:2013, *Railway applications — Track — Trailers and associated equipment — Part 1: Technical requirements for running and working*

EN 15954-2:2013, *Railway applications — Track — Trailers and associated equipment — Part 2: General safety requirements*

EN 15807, *Railway applications — Pneumatic half couplings*

EN 50121-3-1:2006, *Railway applications — Electromagnetic compatibility —Part 3-1: Rolling stock — Train and complete vehicle*

EN 50121-3-2:2006, *Railway applications — Electromagnetic compatibility — Part 3-2: Rolling stock — Apparatus*

EN 50122-1:2011, *Railway applications — Fixed installations — Electrical safety, earthing and the return circuit — Part 1: Protective provisions against electric shock*

EN 50206-1, *Railway applications — Rolling stock — Pantographs: Characteristics and tests — Part 1: Pantographs for main line vehicles*

EN 50206-2, *Railway applications — Rolling stock — Pantographs: Characteristics and tests — Part 2: Pantographs for metros and light rail vehicles*

EN 50317, *Railway applications — Current collection systems — Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line*

EN 50318, *Railway applications — Current collection systems — Validation of simulation of the dynamic interaction between pantograph and overhead contact line*

EN 50367, *Railway applications — Current collection systems — Technical criteria for the interaction between pantograph and overhead line (to achieve free access)*

EN 50405, *Railway applications — Current collection systems — Pantographs, testing methods for carbon contact strips*

EN 60947 (all parts), *Low-voltage switchgear and controlgear (IEC 60947, all parts)*

EN ISO 7731, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731)*

ISO 8755, *Commercial road vehicles — 40 mm drawbar eye — Interchangeability*

DIN 74054 (all parts), *Mechanical connections between towing vehicles and trailers*

BS AU 138a:1980, *Specification for dimensions of "contact" type couplings for air pressure braking systems on trailers and semi-trailers and their towing vehicles, and the arrangement of these couplings on articulated and drawbar combinations*

UIC 608, *Conditions to be complied with for the pantographs of tractive units used in international services*

3 Terms and definitions

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

3.1
road-rail machine
self-propelled machine that can run on rails and ground

Note 1 to entry It is normally a road vehicle adapted for moving on rail also, but can be a specially designed rail vehicle for moving on the ground also.

Note 2 to entry It does not imply that the machine is suitable for use on the public road.

3.2
demountable machine
machine that can travel and work only on rail and which is not intended to operate track signalling and control systems, but is not able to travel on the ground

Note 1 to entry Such a machine is designed to get on and off track by its own means or with other lifting equipment. In the case of demounting by its own means these are not intended for running on the ground.

Note 2 to entry Such a machine is permitted to work on the railway only under special operating conditions granted by the infrastructure manager and run under special conditions granted by the authorized body and/or the infrastructure manager.

3.3
trailer
non-self-propelled machine that can be hauled on rail wheels

Note 1 to entry: Trailers are not intended to operate track signalling and control systems and are not designed to be transported between work areas on their rail wheels.

3.4
mobile elevating work platform
MEWP
mobile machine intended to move persons to working positions where they carry out work from the work platform with the intention that persons get on and off the work platform at one defined access position, and which consists as a minimum of a work platform with controls, an extending structure and a chassis

3.5
general attachment
components or assembly of components which can be mounted onto the machine or equipment for a specific use

Note 1 to entry: For equipment for specific use see ISO 6746-1, ISO 6746-2 and ISO 6016.

3.6
railway specific attachment
equipment that is mechanically fixed to and / or powered or controlled from the road rail machine

Note 1 to entry Mechanically fixed should be taken to indicate that the attaching point is semi-permanent (very often a Quick Hitch type device). Equipment which requires skilled fitting staff to assemble / remove should not

normally be thought of as an attachment – such equipment is a part of the original machine, and its addition is a modification to the machine.

3.7
demountable module
removable component which is capable of being attached with dedicated fastening system to a machine, to perform a specific function

3.8
lifting accessory
loose lifting tackle, i.e. components or equipment not attached to the machine and placed between the machinery and the load or on the load in order to attach it

3.9
host vehicle
basic road vehicle or machine which is converted to run additionally on rails this vehicle needs to be either EU road permissible or CE marked

3.10
manufacturer
body that designs and constructs a road-rail machine, or converts the original machine/vehicle to a road-rail machine

3.11
running mode
mode by which the suspension of the machine allows movement along the track, all parts stowed with everything within the applicable gauge, the machine interrelates with the signalling and control systems for normal railway traffic

Note 1 to entry: The mode only relates to the technical configuration of the machine independent of the operational mode (e.g. movements during shunting and regular train running). The operational mode is defined by the infrastructure manager.

3.12
travelling mode
mode by which the suspension of the machine allows movement along the track, all parts stowed with everything within the applicable gauge, the machine does not require to interrelate with the signalling and control systems (in this condition there is no need to ensure operation of signalling systems or for cab based signalling equipment), this mode also includes shunting

Note 1 to entry A machine in travelling mode does not need to meet the operational requirements for the movement of trains on the railway network.

Note 2 to entry The mode only relates to the technical configuration of the machine independent of the operational mode (e.g. movements during shunting and regular train running). The operational mode is defined by the infrastructure manager.

3.13
working mode
mode by which the machine is used to perform any of its permitted design tasks, as soon as a machine is unpacked it is in working mode

3.14
shunting
movement along the track, controlled by operational signals, or radio, of self-propelled machines, either on its own or towing or propelling one or more vehicles or machines

3.15
on and off tracking mode
mode of the machine when it is in a state that enables it to be on or off tracked

3.16
running
moving the machine in running mode along the track

3.17
operating track
track corresponding to the criteria of the infrastructure manager on which vehicles may run under normal signalling arrangements (with or without a speed limit)

3.18
working track
track not open for normal traffic

3.19
degraded working track
track being maintained for which the geometrical parameters may reach the limiting values as specified in EN 14033-2:2008+A1:2011, Annex F and for which special operational restrictions may apply

3.20
railway infrastructure
all installations required for the running of railway vehicles

EXAMPLE Tracks, crossings, catenaries, signals.

3.21
machine operator
private or public undertaking which operates machines for the construction and maintenance of the infrastructure

3.22
operator
person who handles the controls of a machine in order to perform the functions of the machine

3.23
driver
person who handles the controls of a machine in order to control the machine in travelling and working mode when moving along the track

Note 1 to entry: The driver and operator can be the same.

3.24
train
self-propelled machine or assembly of vehicles/machines attached by couplings conforming to the relevant regulations of the authorized body and/or infrastructure manager

Note 1 to entry: This is only relevant to Category 8 machines.

Note 2 to entry: This does not exclude Category 9 machines from shunting conventional rail vehicles, where permitted by the infrastructure manager.

3.25
special train
assembly of vehicles/machines attached by couplings to a Category 9 machine, and conforming to the relevant requirements of the infrastructure manager

3.26
rated load
load that the lifting equipment has been designed for normal operation and the manufacturer states can be lifted in any specified position

3.27
authorized body
body in a state that, in accordance with the laws and prescriptions in force in that state, is competent to approve rail vehicles for the use in public rail traffic

3.28
type testing
examination of the first machine, of a new type, for build conformity to the requirements of this standard

3.29
type conformance testing
procedure to verify that the machine conforms to the design of the first machine of the type that has been approved

3.30
type approval certificate
document issued after the checking of documents and/or testing of vehicles in which the agreement of the use of the machine on the infrastructure is confirmed

3.31
railway undertaking
private or public undertaking whose main business is to provide rail transport services for goods and/or passengers

Note 1 to entry: Category 8 machines will require a railway undertaking to operate the machine on the operating track.

3.32
infrastructure manager
public body or undertaking responsible for establishing and maintaining railway infrastructure, as well as for operating the railway control and safety systems

3.33
access permit
document issued by the infrastructure manager for an approved machine to be used on the railway infrastructure, if necessary with special access conditions