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Železniške naprave - Zgornji ustroj proge - Težka tirna mehanizacija za gradnjo in vzdrževanje - 4. del: Tehnične zahteve za pogon, obratovanje in delovanje mestne železnice

Railway applications - Track - Railbound construction and maintenance machines - Part 4: Technical requirements for running, travelling and working on urban rail

Bahnanwendungen - Oberbau - Schienengebundene Bau- und Instandhaltungsmaschinen - Teil 4: Technische Anforderungen an Fahrbetrieb, Versetzfahrten und Arbeitseinsatz im Schienennahverkehr

Applications ferroviaires - Voie - Machines de construction et de maintenance empruntant exclusivement les voies ferrées - Partie 4 : Exigences techniques pour la circulation, le déplacement et le travail sur le réseau ferroviaire urbain

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93.100	Gradnja železnic	Construction of railways

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

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European foreword

This document (prEN 14033-4:2017) 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 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.

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 fourth of a series of four parts of the European Standard: Railway applications — Track — Railbound construction and maintenance machines, dealing with railway specific risks of the machines when running, travelling and working on railway infrastructures:

— Part 1 covers the essential requirements for the machines in running mode; this is a harmonized standard with the Railway Interoperability Directive 2008/57/EC and its associated Technical Specifications for Interoperability (TSI).

— Part 2 covers the technical requirements for the machines in working and travelling modes, and is applicable for all machines.

— Part 3 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 4 covers the technical requirements for the machines intended to have working, travelling and/or running mode on urban rail.

Part 1 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 2 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 3 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 4 defines requirements for approval of the machine for use on urban rail, depending on the decision of the Urban Rail Manager or National rules the assessment of conformance could be by the Urban Rail Manager concerned, by a third party assessor or declaration of conformity by the manufacturer.

Additional requirements or deviations to Parts 1, 2 and 3 for urban rail are detailed in Part 4.

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 railbound construction and maintenance machines – henceforward referred to as machines, intended for use on urban rail. These hazards can arise during the commissioning, the operation and the maintenance of machines when carried out in accordance with the specification given by the manufacturer or his authorized representative.

The requirements in this standard amend those in EN 14033-1 to -3 as required for the use of the machine on urban railways. Where a machine is designed and intended for use on mainline and urban rail, compliance with the most onerous conditions of EN 14033-1 and EN 14033-4 will be required.

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 Urban Rail Manager;

— moving and working whilst not on rails.

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. in tunnels or cuttings, extreme environmental conditions such as: freezing temperatures, high temperatures, corrosive environments, tropical environments, contaminating environments, strong magnetic fields;

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

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

1.2 Scope of urban rail

Urban rail systems cover Urban Guided Transport systems (UGT) and might include other rail systems excluded from the scope of the Interoperability Directive 2008/57/EC (Article 1.3 (a) and (b))1.

Urban Guided Transport systems (UGT), which cover metro, tram and light rail, are defined as public transport systems permanently guided at least by one rail, intended for the operation of local, urban and suburban passenger services with self-propelled vehicles and operated either segregated or not from general road and pedestrian traffic.

Categories of urban rail systems include:

— (I) Metros: UGT systems operated on their own right of way and segregated from general road and pedestrian traffic. They are consequently designed for operations in tunnel, viaducts or on surface level but with physical separation in such a way that inadvertent access is not possible. In different parts of the world, Metro systems are also known as the underground, the subway or the tube. Rail systems with specific construction issues operating on a segregated guideway (e.g. monorail, rack

railways) are also treated as Metros as long as they are designated as part of the urban public transport network.

— (II) Trams: UGT systems not segregated from general road and pedestrian traffic, which share their right of way with general road and/or pedestrian traffic and are therefore embedded in their relevant national road traffic legislation (highway codes and specific adaptations).

— (III) Light Rail: Light Rail is defined as a UGT system operated in parts of the system not segregated from general road and pedestrian traffic, and in parts of the system with segregated right-of-way. The segregation may include some sections of line where inadvertent access is not possible.

— (IV) Local rail systems which by national decision complying with Article 1 (3) a) or b) of Directive 2008/57/EC may be excluded from the European Community Rail System.

NOTE Such systems connect city centres with their suburban hinterland or regional local centres. Such systems are operated on rights of way which are basically segregated from general road and/or pedestrian traffic and/or which can be declared by law as independent from the public environment even if they are not segregated by location, form of construction or appropriate measures. For historical reasons they might be strongly influenced by conventional railway parameters and their operations procedures.

1.3 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 are referred to in the text in such a way that some or all of their content constitutes requirements 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 12663-1, *Railway applications — Structural requirements of railway vehicle bodies — Part 1: Locomotives and passenger rolling stock (and alternative method for freight wagons)*

EN 14033-1:2017, *Railway applications — Track — Railbound construction and maintenance machines - Part 1: Technical requirements for running*

EN 14033-2:2017, *Railway applications — Track — Railbound construction and maintenance machines - Part 2: Technical requirements for travelling and working*

EN 14033-3:2017, *Railway applications — Track — Railbound construction and maintenance machines - Part 3: General safety requirements*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14033-1:2017, EN 14033-2:2017, EN 14033-3:2017, EN ISO 12100:2010 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
urban rail system
Urban Guided Transport system (UGT), which cover metros, trams and light rails and other urban and regional rail systems

Note 1 to entry: Regional rail systems include regional light rail systems which are also known as term “Tram Train Systems“.

3.2
Urban Rail Manager
organization in charge of the specific urban rail system

Note 1 to entry: This may include the roles of the infrastructure manager and railway undertaking as described in the Railway Interoperability Directive 2008/57/EC.

3.3
Manufacturer
body that designs and constructs the machine

Note 1 to entry: This may include organisations that modify existing machines.

4 Machines designed for running on urban rail

4.1 Compliance with EN 14033-1:2017

Except as shown in 4.2 machines shall comply with EN 14033-1:2017.

4.2 Exceptions to compliance with EN 14033-1:2017

4.2.1 Rolling stock gauge - General rules, EN 14033-1:2017, 5.1

It is permitted for machines not to comply with gauging requirements of EN 14033-1:2017, 5.1. The gauge of the urban rail for which the machine is intended to operate shall be requested from the Urban Rail Manager. The manufacturer shall state in the instruction handbook the system(s) on which the machine is intended to run.

4.2.2 Frame, EN 14033-1:2017, 6.1

Machines shall comply with EN 14033-1:2017, 6.1 except the structural category in EN 12663-1 is to be P-III, P-IV or P-V.

In addition the Urban Rail Manager is permitted to specify collision scenarios to be used for the cab protection arrangements based on a risk analysis.

4.2.3 Bogie and running gear, general, EN 14033-1:2017, 7.1

The running gear shall be able to negotiate the horizontal and vertical radii as specified by the Urban Rail Manager.

4.2.4 Bogie and running gear, other components, EN 14033-1:2017, 7.2.2

As an alternative to EN 14033-1:2017, 7.2.2, it is permitted for the Urban Rail Manager to specify alternative validation methods for bogie components.

4.2.5 Static axle loads, EN 14033-1:2017, 7.4

It is permitted for machines not to comply with the static axle loads of EN 14033-1:2017, 7.4. The limits for the urban rail system for which the machine is intended to run shall be requested from the Urban