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**Železniške naprave - Infrastruktura - Težka tirna mehanizacija za gradnjo in vzdrževanje - 3. del: Splošne varnostne zahteve**

Railway applications - Infrastructure - Railbound construction and maintenance machines - Part 3: General safety requirements

Bahnanwendungen - Oberbau - Schienengebundene Bau- und Instandhaltungsmaschinen - Teil 3: Allgemeine Sicherheitsanforderungen

Applications ferroviaires - Voie - Machines de construction et de maintenance empruntant exclusivement les voies ferrées - Partie 3 : Prescriptions générales pour la sécurité

**Ta slovenski standard je istoveten z: prEN 14033-3**

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**ICS:**

45.120	Oprema za gradnjo in vzdrževanje železnic oz. žičnic	Equipment for railway/cableway construction and maintenance
93.100	Gradnja železnic	Construction of railways

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## Railway applications - Infrastructure - Railbound construction and maintenance machines - Part 3: General safety requirements

Applications ferroviaires - Voie - Machines de  
construction et de maintenance empruntant  
exclusivement les voies ferrées - Partie 3 :  
Prescriptions générales pour la sécurité

Bahnanwendungen - Oberbau - Schienengebundene  
Bau- und Instandhaltungsmaschinen - Teil 3:  
Allgemeine Sicherheitsanforderungen

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.

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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.

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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (prEN 14033-3:2024) 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 CEN Enquiry.

This document will supersede EN 14033-3:2017.

Amended clauses compared to EN 14033-3:2017 are detailed in informative Annex I.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For relationship with EU Directive 2006/42/EC, see informative Annex ZA, which is an integral part of this document. For relationship with EU Directive 2023/1230, see informative Annex ZB, which is an integral part of this document.

This series of standards EN 14033 “*Railway applications — Track — Railbound construction and maintenance machines*” consists of the following parts:

- *Part 1: Technical requirements for running*
- *Part 2: Technical requirements for travelling and working*
- *Part 3: General safety requirements*
- *Part 4: Technical requirements for running, travelling and working on urban rail*

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## prEN 14033-3:2024 (E)

### Introduction

This document is a type C standard as stated in EN ISO 12100:2010.

This document is the third of a series of three parts of the European Standard: Railway applications — Track — Railbound construction and maintenance machines:

- Part 1 covers the safety and technical requirements for the machines in running mode;;
- Part 2 covers the railway specific requirements for the machines in working and travelling modes;
- 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 systems, giving the amendments to parts 1 – 3 to suit urban rail operation.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those, which are stated in type B standards, the provisions of this type C standard take precedence over the provisions of the other standards.

The hazards 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 document. Where necessary, references are made to appropriate standards of this type.

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## 1 Scope

This document applies to railbound machines and other vehicles - referred to as machines - working exclusively on the railway (utilizing friction adhesion between the rail and rail wheels) but including machines that in working position are partly supported on the ballast or the formation and used for construction, maintenance and inspection of track, structures, infrastructure and fixed electric traction equipment. This document applies to machines that are intended to operate signalling and control systems.

NOTE 1 Other rail mounted railway maintenance and infrastructure inspection machines are dealt with in other European Standards, see Technical Report CEN/TR 17498:2020.

This document specifies the significant hazards, hazardous situations and events common to rail bound machines and arising due their use on railways when they are used as intended or under conditions of misuse which are reasonably foreseeable, see Clause 4.

This document specifies the common hazards, in normal circumstances, during running, assembly and installation, commissioning, use (including setting, programming, and process changeover), operation, cleaning, fault finding, maintenance and de-commissioning of the machines. Additional safety measures can be required by exceptional circumstances, such as extreme ambient temperatures highly corrosive or contaminating environment; e.g. due to the presence of chemicals, and potentially explosive atmospheres.

NOTE 2 This document covers the essential health and safety requirements connected to the use of railbound machines as outlined in the Machinery Directive.

This document does not apply to the following:

- requirements for quality of the work or performance of the machine;
- use of separate equipment temporarily mounted on machines;
- 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. corrosive environments, contaminating environments, strong magnetic fields;
- hazards occurring when used to handle suspended loads which may swing freely;
- autonomous mobile machines.

NOTE 3 Autonomous mobile machines are referred to as 'autonomous mobile machinery' in the Machinery Regulations 3.1.1 c).

## 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 2:1992, *Classification of fires*

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EN 3-7:2004+A1:2007, *Portable fire extinguishers - Part 7: Characteristics, performance requirements and test methods*

EN 280-1:2022, *Mobile elevating work platforms - Part 1: Design calculations - Stability criteria - Construction - Safety - Examinations and tests*

EN 280-2:2022, *Mobile elevating work platforms - Part 2: Additional safety requirements for load lifting appliances on the extending lifting structure and work platform*

EN 402:2003, *Respiratory protective devices - Lung governed demand self-contained open-circuit compressed air breathing apparatus with full face mask or mouthpiece assembly for escape - Requirements, testing, marking*

EN 403:2004, *Respiratory protective devices for self-rescue - Filtering devices with hood for escape from fire - Requirements, testing, marking*

EN 474-1:2022, *Earth-moving machinery - Safety - Part 1: General requirements*

EN 547-1:1996+A1:2008, *Safety of machinery - Human body measurements - Part 1: Principles for determining the dimensions required for openings for whole body access into machinery*

EN 547-2:1996+A1:2008, *Safety of machinery - Human body measurements - Part 2: Principles for determining the dimensions required for access openings*

EN 547-3:1996+A1:2008, *Safety of machinery - Human body measurements - Part 3: Anthropometric data*

EN 614-1:2006+A1:2009, *Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles*

EN 614-2:2000+A1:2008, *Safety of machinery - Ergonomic design principles - Part 2: Interactions between the design of machinery and work tasks*

EN 618:2002+A1:2010, *Continuous handling equipment and systems - Safety and EMC requirements for equipment for mechanical handling of bulk materials except fixed belt conveyors*

EN 619:2022, *Continuous handling equipment and systems - Safety requirements for equipment for mechanical handling of unit loads*

EN 620:2021, *Continuous handling equipment and systems - Safety requirements for fixed belt conveyors for bulk materials*

EN 842:1996+A1:2008, *Safety of machinery - Visual danger signals - General requirements, design and testing*

EN 894-1:1997+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 1: General principles for human interactions with displays and control actuators*

EN 894-2:1997+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 2: Displays*

EN 894-3:2000+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 3: Control actuators*

EN 894-4:2010, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 4: Location and arrangement of displays and control actuators*

EN 981:1996+A1:2008, *Safety of machinery - System of auditory and visual danger and information signals*

EN 1032:2003+A1:2008, *Mechanical vibration - Testing of mobile machinery in order to determine the vibration emission value*

EN 1837:2020, *Safety of machinery - Integral lighting of machines*

EN 12077-2:1998+A1:2008, *Cranes safety - Requirements for health and safety - Part 2: Limiting and indicating devices*

EN 12096:1997, *Mechanical vibration - Declaration and verification of vibration emission values*

EN 12999:2020, *Cranes - Loader cranes*

EN 13000:2010+A1:2014, *Cranes - Mobile cranes*

EN 13135:2013+A1:2018, *Cranes - Safety - Design - Requirements for equipment*

prEN 14033-1:2024, *Railway applications — Track — Railbound construction and maintenance machines — Part 1: Technical requirements for running*

prEN 14033-2:2024, *Railway applications — Track — Railbound construction and maintenance machines — Part 2: Technical requirements for travelling and working*

EN 14813-1:2006+A1:2010, *Railway applications - Air conditioning for driving cabs - Part 1: Comfort parameters*

EN 15153-2:2020, *Railway applications - External visible and audible warning devices - Part 2: Warning horns for heavy rail*

EN 15877-1:2012+A1:2018, *Railway applications - Marking on railway vehicles - Part 1: Freight wagons*

EN 16507:2014, *Railway applications - Ground based service - Diesel refuelling equipment*

EN 16704-2-1:2016, *Railway applications - Track - Safety protection on the track during work - Part 2-1: Common solutions and technologies - Technical requirements for Track Warning Systems (TWS)*

EN 45545-2:2020+A1:2023, *Railway applications - Fire protection on railway vehicles - Part 2: Requirements for fire behaviour of materials and components*

EN 50121-3-2:2016,<sup>1</sup> *Railway applications - Electromagnetic compatibility – Part 3-2: Rolling stock - Apparatus*

EN 50153:2014,<sup>2</sup> *Railway applications - Rolling stock - Protective provisions relating to electrical hazards*

EN 50155:2021, *Railway applications - Rolling stock - Electronic equipment*

EN 60204-1:2018, *Safety of machinery - Electrical equipment of machines - Part 1: General requirements*

EN 60204-32:2008, *Safety of machinery - Electrical equipment of machines - Part 32: Requirements for hoisting machines*

<sup>1</sup> As impacted by EN 50121-3-2:2016/A1:2019.

<sup>2</sup> As impacted by EN 50153:2014/A1:2017 and EN 50153:2014/A2:2020.

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EN 60529:1991,<sup>3</sup> *Degrees of protection provided by enclosures (IP Code)*

EN 60825-1:2014,<sup>4</sup> *Safety of laser products - Part 1: Equipment classification and requirements*

EN 61310-1:2008, *Safety of machinery - Indication, marking and actuation - Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)*

EN 61310-2:2008, *Safety of machinery - Indication, marking and actuation - Part 2: Requirements for marking (IEC 61310-2)*

EN 61310-3:2008, *Safety of machinery - Indication, marking and actuation - Part 3: Requirements for the location and operation of actuators (IEC 61310-3)*

EN 61373:2010, *Railway applications - Rolling stock equipment - Shock and vibration tests*

EN IEC 61496-1:2020, *Safety of machinery - Electro-sensitive protective equipment - Part 1: General requirements and tests*

EN 61508-3:2010, *Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 3: Software requirements*

EN 62262:2002,<sup>5</sup> *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

EN ISO 2860:2008, *Earth-moving machinery - Minimum access dimensions (ISO 2860:1992)*

EN ISO 2867:2011, *Earth-moving machinery - Access systems (ISO 2867:2011)*

EN ISO 3411:2007, *Earth-moving machinery - Physical dimensions of operators and minimum operator space envelope (ISO 3411:2007)*

EN ISO 3449:2008, *Earth-moving machinery - Falling-object protective structures - Laboratory tests and performance requirements (ISO 3449:2005)*

EN ISO 3471:2008, *Earth-moving machinery - Roll-over protective structures - Laboratory tests and performance requirements (ISO 3471:2008)*

EN ISO 3744:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 4413:2010, *Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414:2010)*

<sup>3</sup> As impacted by EN 60529:1991/A1:2000, EN 60529:1991/A2:2013, EN 60529:1991/corrigendum May 1993, EN 60529:1991/AC:2016-12 and EN 60529:1991/A2:2013/AC:2019-02.

<sup>4</sup> As impacted by EN 60825-1:2014/A11:2021, EN 60825-1:2014/A11:2021/AC:2022-03 and EN 60825-1:2014/AC:2017-06.

<sup>5</sup> As impacted by EN 62262-2:2002/A1:2021.

EN ISO 4871:2009, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 6682:2008, *Earth-moving machinery - Zones of comfort and reach for controls (ISO 6682:1986, including Amd 1:1989)*

EN ISO 6683:2008, *Earth-moving machinery - Seat belts and seat belt anchorages - Performance requirements and tests (ISO 6683:2005)*

EN ISO 7096:2020, *Earth-moving machinery - Laboratory evaluation of operator seat vibration (ISO 7096:2020)*

EN ISO 7731:2008, *Ergonomics - Danger signals for public and work areas - Auditory danger signals (ISO 7731:2003)*

EN ISO 11201:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 11688-1:2009, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13849-1:2023, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2023)*

EN ISO 13849-2:2012, *Safety of machinery - Safety-related parts of control systems - Part 2: Validation (ISO 13849-2:2012)*

EN ISO 13850:2015, *Safety of machinery - Emergency stop function - Principles for design (ISO 13850:2015)*

EN ISO 13854:2019, *Safety of machinery - Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

EN ISO 13855:2010, *Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

EN ISO 13857:2019, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14118:2018, *Safety of machinery - Prevention of unexpected start-up (ISO 14118:2017)*

EN ISO 14119:2013, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO 14119:2013)*

EN ISO 14120:2015, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

EN ISO 14122-2:2016, *Safety of machinery - Permanent means of access to machinery - Part 2: Working platforms and walkways (ISO 14122-2:2016)*

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EN ISO 14122-3:2016, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2016)*

EN ISO 16001:2017, *Earth-moving machinery - Object detection systems and visibility aids - Performance requirements and tests (ISO 16001:2017)*

EN ISO 20643:2008,<sup>6</sup> *Mechanical vibration— Hand-held and hand-guided machinery — Principles for evaluation of vibration emission*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads - Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 5353:1998, *Earth-moving machinery, and tractors and machinery for agriculture and forestry - Seat index point (ISO 5353:1995)*

ISO 3795:1989, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

ISO 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

ISO 5006:2017, *Earth-moving machinery — Operator's field of view — Test method and performance criteria*

ISO 6011:2023, *Earth-moving machinery — Visual display of machine operation*

ISO 6405-1:2017,<sup>7</sup> *Earth-moving machinery — Symbols for operator controls and other displays — Part 1: Common symbols*

ISO 7000:2019, *Graphical symbols for use on equipment — Registered symbols*

ISO 7010:2019,<sup>8</sup> *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 8434-2:2007, *Metallic tube connections for fluid power and general use — Part 2: 37 degree flared connectors*

ISO 10263-2:2009, *Earth-moving machinery — Operator enclosure environment — Part 2: Air filter element test method*

ISO 10263-3:2009, *Earth-moving machinery — Operator enclosure environment — Part 3: Pressurization test method*

ISO 10263-4:2009, *Earth-moving machinery — Operator enclosure environment — Part 4: Heating, ventilating and air conditioning (HVAC) test method and performance*

ISO 10263-5:2009, *Earth-moving machinery — Operator enclosure environment — Part 5: Windscreen defrosting system test method*

<sup>6</sup> As impacted by EN ISO 20643:2008/A1:2012.

<sup>7</sup> As impacted by ISO 6405-1:2017/Amd1:2022.

<sup>8</sup> As impacted by ISO 7010:2019/A1:2020, ISO 7010:2019/A2:2020, ISO 7010:2019/A3:2021, ISO 7010:2019/A4:2021, ISO 7010:2019/A5:2022, ISO 7010:2019/A6:2022, ISO 7010:2019/A7:2023 and ISO 7010:2019/A8:2024.