

# SVENSK STANDARD

## SS-EN 12111:2014



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### **Tunnelborrningsmaskiner – Fräsmaskiner och kontinuerliga gruvbrytningsmaskiner – Säkerhetskrav**

### **Tunnelling machines – Road headers and continuous miners – Safety requirements**



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Denna standard ersätter SS-EN 12111+A1:2009, utgåva 1.

The European Standard EN 12111:2014 has the status of a Swedish Standard. This document contains the official version of EN 12111:2014.

This standard supersedes the Swedish Standard SS-EN 12111+A1:2009, edition 1.

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EUROPEAN STANDARD

EN 12111

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2014

ICS 91.220; 93.060

Supersedes EN 12111:2002+A1:2009

English Version

## Tunnelling machines - Road headers and continuous miners - Safety requirements

Machines pour la construction de tunnels - Machines à  
attaque ponctuelle et mineurs continus - Prescriptions de  
sécurité

Tunnelbaumaschinen - Teilschnittmaschinen und  
Continuous miners - Sicherheitstechnische Anforderungen

This European Standard was approved by CEN on 20 March 2014.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

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

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## Foreword

This document (EN 12111:2014) has been prepared by Technical Committee CEN/TC 151 "Construction equipment and building material machines - Safety", 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of an identical text or by endorsement, at the latest by November 2014 and conflicting national standards shall be withdrawn at the latest by November 2014.

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 supersedes EN 12111:2002+A1:2009.

The main technical changes compared to EN 12111:2002+A1:2009 are the following:

- modification of the scope, "impact rippers" deleted;
- update of normative references;
- improvement of requirements on access systems;
- requirements on control systems improved;
- revision of requirements on audible and visual warning signs;
- improvement of noise test code.

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, 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, 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 the United Kingdom.



## Introduction

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

The machinery concerned and the extent to which hazards, hazardous situations and 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 A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

Annex A is normative and contains the “Noise Test Code” and Annex B is informative and contains “Figures”.

**SS-EN 12111:2014 (E)****1 Scope**

This European Standard deals with all significant hazards, hazardous situations and events relevant to road headers and continuous miners as defined in Clause 3 (hereinafter called machines) when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

NOTE 1 Within the intended use, overturning of the road header or continuous miner is not a significant hazard.

Excavators are out of the scope of this standard and are covered by EN 474-1:2006+A4:2013 and EN 474-5:2006+A3:2013.

The following items and applications are not covered by this European Standard:

- the supply of electricity up to the switch box;
- use of the machine in potentially explosive atmospheres;
- use of the machine under hyperbaric conditions;
- loading and transport equipment which is not an integral part of the machine.

This European Standard covers incorporation of monitoring devices for hazardous atmospheres.

This European Standard is not applicable to machines manufactured before the date of publication of this European Standard by CEN.

NOTE 2 Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres can be applicable to the type of machine or equipment covered by this European Standard. The present standard is not intended to provide means of complying with the essential health and safety requirements of Directive 94/9/EC. For the application in potentially explosive atmospheres see EN 1710:2005+A1:2008.

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

EN 474-1:2006+A4:2013, *Earth-moving machinery - Safety - Part 1: General requirements*

EN 617:2001+A1:2010, *Continuous handling equipment and systems - Safety and EMC requirements for the equipment for the storage of bulk materials in silos, bunkers, bins and hoppers*

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 620:2002+A1:2010, *Continuous handling equipment and systems - Safety and EMC requirements for fixed belt conveyors for bulk materials*

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 953:1997+A1:2009, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards*

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

- EN 1679-1:1998+A1:2011, *Reciprocating internal combustion engines - Safety - Part 1: Compression ignition engines*
- EN 16228-1:2014, *Drilling and foundation equipment — Safety — Part 1: Common requirements*
- EN 16228-2:2014, *Drilling and foundation equipment — Safety — Part 2: Mobile drill rigs for civil and geotechnical engineering, quarrying and mining*
- EN 60076-2:2011, *Power transformers — Part 2: Temperature rise for liquid-immersed transformers (IEC 60076-2:2011)*
- EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*
- EN 60204-11:2000, *Safety of machinery — Electrical equipment of machines — Part 11: Requirements for HV equipment for voltages above 1000 V a.c. or 1500 V d.c. and not exceeding 36 kV (IEC 60204-11:2000)*
- EN 60439-2:2000, *Low-voltage switchgear and controlgear assemblies — Part 2: Particular requirements for busbar trunking systems (busways) (IEC 60439-2:2000)*
- EN 60439-4:2004, *Low-voltage switchgear and controlgear assemblies — Part 4: Particular requirements for assemblies for construction sites (ACS) (IEC 60439-4: 2004)*
- EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*
- EN 60947-1:2007, *Low-voltage switchgear and controlgear — Part 1: General rules (IEC 60947-1:2007)*
- 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 61439-1:2011, *Low-voltage switchgear and controlgear assemblies — Part 1: General rules (IEC 61439-1:2011)*
- 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 3457:2008, *Earth-moving machinery - Guards - Definitions and requirements (ISO 3457:2003)*
- 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 3746:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*
- EN ISO 3747:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering/survey methods for use in situ in a reverberant environment (ISO 3747:2010)*
- 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)*
- EN ISO 4871:2009, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*