



**NSAI**  
Standards

Irish Standard  
I.S. EN 16191:2014

## Tunnelling machinery - Safety requirements

**I.S. EN 16191:2014**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## Tunnelling machinery - Safety requirements

Tunneliers - Prescriptions de sécurité

Tunnelbaumaschinen - Sicherheitstechnische  
Anforderungen

This European Standard was approved by CEN on 10 April 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.

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

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## **Foreword**

This document (EN 16191:2014) 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of an identical text or by endorsement, at the latest by November 2014 and conflicting national standards shall be withdrawn at the latest by November 2014.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 12336:2005+A1:2008 and EN 815:1996+A2:2008.

The main technical changes compared to EN 12336:2005+A1:2008 and EN 815:1996+A2:2008 are the following:

- update of the scope;
- update of normative references;
- improvement of requirements on access systems, especially on minimum dimensions on walkways and access openings;
- requirements on control systems improved;
- improvement of fire prevention and protection;
- 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(s), 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.

## **EN 16191:2014 (E)**

### **Introduction**

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

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

The intended use of the machinery is agreed between the manufacturer and the user taking into account information on predicted ground conditions provided by the user.

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.



## 1 Scope

This European Standard is applicable to tunnelling machinery as defined in Clause 3 used for the construction of tunnels, shafts and other underground excavations.

It deals with all significant hazards, hazardous situations and events relevant to such machinery when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).

This European Standard covers monitoring for hazardous atmospheres within the confines of the tunnelling machinery.

Hand-arm and whole-body vibration are not considered as significant hazard for tunnelling machinery.

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

- the additional requirements for the use of tunnelling machinery under hyperbaric conditions;
- the additional requirements for use of tunnelling machinery in potentially explosive atmospheres;

NOTE For the application in potentially explosive atmospheres see EN 1710:2005+A1:2008 for guidance.

- ancillary tools and equipment which are not an integral part of the tunnelling machinery but used on or with the machinery;
- services (e.g. power supply, water, pipes, compressed air, etc.) supplied to the tunnelling machinery;
- loading and transport equipment which is not an integral part of the tunnelling machinery, e.g. man riders, locomotives, grout cars, segment cars, muck cars and shaft hoisting equipment.

This European Standard is not applicable to road headers, continuous miners and impact rippers.

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

## 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 363:2008, *Personal fall protection equipment - Personal fall protection systems*

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

EN 894-3:2000+A1:2008, *Safety of machinery - Ergonomics requirements for the design of displays and control actuators - Part 3: 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 1837:1999+A1:2009, *Safety of machinery - Integral lighting of machines*

EN 1993-1-1:2005, *Eurocode 3: Design of steel structures — Part 1-1: General rules and rules for buildings*

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