

STN	Bezpečnosť strojov Integrované osvetlenie strojov	STN EN 1837 83 3400
------------	--	---------------------------------------

Safety of machinery - Integral lighting of machines

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/21

Obsahuje: EN 1837:2020

Oznámením tejto normy sa ruší
STN EN 1837+A1 (83 3400) z marca 2010

132384

EUROPEAN STANDARD**EN 1837****NORME EUROPÉENNE****EUROPÄISCHE NORM**

December 2020

ICS 13.110; 91.160.10

Supersedes EN 1837:1999+A1:2009

English Version

Safety of machinery - Integral lighting of machines

Sécurité des machines - Éclairage intégré aux machines

Sicherheit von Maschinen - Maschinenintegrierte
Beleuchtung

This European Standard was approved by CEN on 18 October 2020.

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.

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

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

Contents		Page
European foreword		3
Introduction		4
1	Scope	5
2	Normative references	5
3	Terms and definitions	6
4	Lighting requirements	7
4.1	General	7
4.2	Illuminance	7
4.3	Glare	7
4.4	Directionality	7
4.5	Colour quality	8
4.6	Stroboscopic effect	8
4.7	Ergonomic principles	8
4.8	Emergency lighting	8
5	Lighting equipment and installation	8
5.1	Light sources	8
5.2	Luminaires	9
5.3	Installation	9
5.4	Availability of illumination	9
5.5	Electrical supply	9
6	Verification procedures	10
7	Information for use	11
Annex A (informative) Examples		12
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered		15
Bibliography		16

European foreword

This document (EN 1837:2020) has been prepared by Technical Committee CEN/TC 169 “Light and lighting”, 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 June 2021, and conflicting national standards shall be withdrawn at the latest by June 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1837:1999+A1:2009.

In comparison with EN 1837:1999+A1:2009, the following technical modifications have been made:

- reference to EN ISO 12100 added and all local definitions removed to prevent duplication with source terminology standards;
- adding of environmental requirements to Clause 5 Lighting equipment and installation;
- updating of Clause 6 Verification procedures;
- updating of Clause 7 Information for use;
- Annex ZA has been adapted to Directive 2006/42/EC and Annex ZB has been deleted.

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.

This document is a type-B standard as stated in EN ISO 12100. The machinery concerned and the extent to which hazards are covered are indicated in the scope of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

EN 1837:2020 (E)**Introduction**

To illuminate visual tasks within and/or at machines integral lighting systems (built in or at machines) can be required. These integral lighting systems require special characteristics that allow both safe use and efficient performance of the visual task by the operator during operation and service.

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

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

In addition, this document is intended for standardization bodies elaborating type-C standards.

The requirements of this document can be supplemented or modified by a type-C standard.

For machines that are covered by the scope of a type-C standard and have been designed and built according to the requirements of that standard, the requirements of that type-C standard take precedence.

1 Scope

This document specifies the parameters of integral lighting systems designed to provide illumination in and/or at both stationary and mobile machines to enable the safe use of the machine and the efficient performance of the visual task within and/or at the machine to be carried out by the operator.

This document does not specify lighting systems mounted on the machine to specifically illuminate visual tasks outside the machine. The function and requirements of these systems are specified in the European standard dealing with the lighting of work places, see EN 12464-1 and EN 12464-2 for further information.

This document does not specify additional requirements for the operation of lighting systems:

- in severe conditions (extreme environmental conditions such as freezer applications, high temperatures, etc.);
- subject to special rules (e.g. explosive atmospheres);
- where the transmittance is reduced by environmental conditions, such as smoke, splashing, etc.

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 12464-1:2011, *Light and lighting — Lighting of work places — Part 1: Indoor work places*

EN 12464-2:2014, *Light and lighting — Lighting of work places — Part 2: Outdoor work places*

EN 12665:2018, *Light and lighting — Basic terms and criteria for specifying lighting requirements*

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 1838:2013, *Lighting applications — Emergency lighting*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016, modified)*

EN 60204-31:2013, *Safety of machinery — Electrical equipment of machines — Part 31: Particular safety and EMC requirements for sewing machines, units and systems (IEC 60204-31:2013)*

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

EN 60204-33:2011, *Safety of machinery — Electrical equipment of machines — Part 33: Requirements for semiconductor fabrication equipment (IEC 60204-33:2009, modified)*

EN 60529:1991,¹ *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

¹ As impacted by EN 60529:1991/corrigendum May 1993 and EN 60529:1991/AC:2016-12.

EN 1837:2020 (E)

EN 60529:1991/A1:2000, *Degrees of protection provided by enclosures (IP Code)*
(IEC 60529:1989/A1:1999)

EN 60529:1991/A2:2013,² *Degrees of protection provided by enclosures (IP Code)*
(IEC 60529:1989/A2:2013)

EN 60598-1:2015,³ *Luminaires — Part 1: General requirements and tests (IEC 60598-1:2014, modified)*

EN 60598-1:2015/A1:2018, *Luminaires — Part 1: General requirements and tests*
(IEC 60598-1:2014/A1:2017)

EN 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code) (IEC 62262:2002)*

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

² As impacted by EN 60529:1991/A2:2013/AC:2019-02.

³ As impacted by EN 60598-1:2015/AC:2015, EN 60598-1:2015/AC:2016 and EN 60598-1:2015/AC:2017-05.