



BSI Standards Publication

High-pressure mercury vapour lamps – Performance specifications

National foreword

This British Standard is the UK implementation of EN 60188:2001+A11:2019. It is derived from IEC 60188:2001. It supersedes BS EN 60188:2001, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A11 is indicated by A11 A11.

The UK participation in its preparation was entrusted to Technical Committee CPL/34/1, Electric lamps.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Amendments/corrigenda issued since publication

Date	Text affected
28 February 2019	Implementation of CENELEC amendment A11:2019: data sheets 60188-IEC-210-1, -235-1, -240-1, -250-1, -261-1, -270-1, -271-1 and -2000-1 (caps E26 and E39) removed
28 February 2019	CENELEC endorsement notices and Z annexes added

**High-pressure mercury vapour lamps –
Performance specifications
(IEC 60188:2001)**

Lampes à vapeur de mercure à haute
pression –
Prescriptions de performance
(CEI 60188:2001)

Quecksilberdampf-Hochdrucklampen -
Anforderungen an die Arbeitsweise
(IEC 60188:2001)

This European Standard was approved by CENELEC on 2001-07-01. CENELEC 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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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

European foreword

The text of document 34A/952/FDIS, future edition 3 of IEC 60188, prepared by SC 34A, Lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60188 on 2001-07-01.

This European Standard supersedes EN 60188:1988 + A1:1990 + A5:1993.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2002-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2004-07-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A, B, C and ZA are normative and annex D is informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60188:2001 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A11

This document (EN 60188:2001/A11:2019) has been prepared by CLC/TC 34A "Lamps and related equipment".

The following dates are fixed:

- latest date by which this document has to be implemented at
national level by publication of an identical
national standard or by endorsement (dop) 2019-12-26
- latest date by which the national standards conflicting with this
document have to be withdrawn (dow) 2021-12-26

Clauses, subclauses, notes, tables, figures and annexes, which are additional to those in IEC 60188:2001 are prefixed "Z".

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Regulation(s).

For the relationship with EU Directives see informative Annexes ZZA, ZZB and ZZC, which are integral parts of this document.

This standard provides test methods related to parameters as prescribed by (EC) Regulation 245/2009, (EU) Regulation 1194/2012 and (EU) Regulation 874/2012 while conformity assessment (sampling, conformity procedures as well as limits) for market surveillance are specified in the text of the above Regulations.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
		Light and lighting – Measurement and presentation of photometric data of lamps and luminaires – Part 1: Measurement and file format	EN 13032-1 + A1	2004 2012
IEC 60050-845	1987	International Electrotechnical Vocabulary – Chapter 845: Lighting	-	-
IEC 60061-1	1993	Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps	EN 60061-1	1993 (mod)
IEC 60923	2005	Auxiliaries for lamps – Ballasts for discharge lamps (excluding tubular fluorescent lamps) – Performance requirements	EN 60923	2005
IEC/TR 61341	2010	Method of measurement of centre beam intensity and beam angle(s) of reflector lamps	EN 61341	2011
IEC 62035	2014	Discharge lamps (excluding fluorescent lamps) – Safety specifications	EN 62035	2014 (mod)
IEC 62321-4 A1	2013 2017	Determination of certain substances in electrotechnical products - Part 4: Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS	EN 62321-4 A1	2014 2017
CIE 84	1989	The measurement of luminous flux	-	-
CIE 13.3	1995	Method of Measuring and Specifying Colour Rendering Properties of Light Sources	-	-

Annex ZZA (informative)

Relationship between this European Standard and the requirements of Commission Regulation (EC) No 245/2009 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/495 to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council [2009 OJ L76]

Once this standard is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of this standard given in Table ZZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding ecodesign requirements of that Regulation and associated EFTA Regulations.

Table ZZA.1 – Correspondence between this European Standard and Commission Regulation (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps, and repealing Directive 2000/55/EC of the European Parliament and of the Council [2009 OJ L76] and Commission's standardization request M/495

Ecodesign requirements of Regulation No (EC) 245/2009 [2009 OJ L76]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Annex III, Table 9, 1.3 (a)	Not covered in this standard	Nominal lamp power
Annex III, 1.3 (a)	Subclause 1.4.5, Annex B	Rated lamp power
Annex III, 1.3 (b)	Not covered in this standard	Nominal lamp luminous flux
Annex III, 1.3 (b)	Subclause 1.4.6, Annex B	Rated lamp luminous flux
Annex III, 1.3 (d)	Subclause 1.4.Z3	Rated lamp lumen maintenance factor
Annex III, 1.3 (e)	Subclause 1.4.Z4	Rated lamp survival factor
Annex III, 1.3 (f)	Subclause 1.4.Z5	Lamp mercury content
Annex III, 1.3 (g)	Annex B	Colour rendering index (CRI)
Annex III, 1.3 (h)	Annex B	Correlated colour temperature (CCT)
Annex III, 1.3 (i)	Not covered in this standard	Ambient temperature inside the luminaire at which the lamp was designed to maximise its luminous flux

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Annex ZZB (informative)

Relationship between this European Standard and the requirements of Commission Regulation (EC) No 1194/2012 aimed to be covered

This European Standard has been prepared under a Commission's standardization request M/495 to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EU) No 1194/2012 of 12 December 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment [2012 OJ L342].

Once this standard is cited in the Official Journal of the European Union under that Commission Regulation, compliance with the clauses of this standard given in Table ZZB.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding ecodesign requirements of that Regulation and associated EFTA regulations.

Table ZZB.1 – Correspondence between this European Standard and Commission Regulation (EU) No 1194/2012 of 12 December 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment [2012 OJ L342] and Commission's standardization request M/495

Ecodesign requirements of Regulation No (EC) 1194/2012 [2012 OJ L342]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Annex I	Subclause 1.6	Technical description of special purpose lamps for eco-design
Annex III, 1.1, 3.1.3 (b)	Subclause 1.4.5, Annex B	Rated lamp power
Annex III, 1.1, 3.1.2 (a), 3.1.3 (c)	Subclause 1.4.Z1 (<u>Complete</u> flux: Subclause 1.4.6, Annex B)	Rated useful luminous flux
Annex III, 3.1.2 (b)	Subclause 1.4.Z4	<u>Nominal</u> lamp life time
Annex III, 3.1.2 (c)	Annex B	Colour temperature (CCT)
Annex III, 3.1.2 (d)	Not covered in this standard	Number of switching cycles before premature failure
Annex III, 3.1.2 (e), Annex IV	Not covered in this standard (Warm-up time for <u>voltage</u> : Subclause 1.4.4, Annex A, data sheets)	Warm-up time up to 60 % of the full <u>light</u> output
Annex III, 3.1.2 (h)	Annex D, Subclause 2.2, data sheets	Lamp dimensions
Annex III, 3.1.2 (i)	Annex B	<u>Nominal</u> beam angle
Annex III, 3.1.2 (n)	Subclause 1.4.Z5	Mercury content
Annex III, 3.1.3 (d)	Subclause 1.4.Z4	<u>Rated</u> lamp life time
Annex III, 3.1.3 (e)	Not covered in this standard	Lamp power factor (only for lamps with integrated controlgear)
Annex III, 3.1.3 (f)	Subclause 1.4.Z3	Lumen maintenance factor at the end of the nominal life
Annex III, 3.1.3 (g)	Annex A, data sheets	Starting time
Annex III, 3.1.3 (h)	Annex B	Colour rendering (CRI)

Ecodesign requirements of Regulation No (EC) 1194/2012 [2012 OJ L342}	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Annex III, 3.1.3 (i)	Annex B	Rated peak intensity
Annex III, 3.1.3 (k)	Annex B	<u>Rated</u> beam angle
Annex III, 3.1.3 (m)	Annex B	Spectral power distribution in the range 180-800 nm

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Annex ZZC (informative)

Relationship between this European Standard and the energy labelling requirements of Commission Delegated Regulation (EU) No 874/2012 aimed to be covered

This European Standard has been prepared under a Commission's standardisation request M/495 to provide one voluntary means of conforming to the energy labelling requirements of Commission Delegated Regulation (EU) No 874/2012 of 12 July 2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaires [2012 OJ L258].

Once this standard is cited in the Official Journal of the European Union under that Commission Regulation, compliance with the clauses of this standard given in Table ZZC.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding energy labelling requirements of that Regulation and associated EFTA regulations.

Table ZZC.1 – Correspondence between this European Standard and Commission Regulation (EU) No 874/2012 of 12 July 2012 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of electrical lamps and luminaires [2012 OJ L258] and Commission's standardisation request M/495

Energy labelling requirements of Regulation No (EC) 874/2012 [2012 OJ L258]	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
Annex III	1.4.5, Annex B	Rated lamp power
Annex III	<u>Complete</u> flux: 1.4.6, Annex B	<u>Useful</u> luminous flux

WARNING 1: Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2: Other Union legislation may be applicable to the products falling within the scope of this standard.

CONTENTS

1	General.....	2
1.1	Scope	2
1.2	Normative references.....	2
1.3	Definitions	3
1.4	Lamp requirements	5
1.4.1	General.....	5
1.4.2	Dimensions	5
1.4.3	Caps	5
1.4.4	Starting and warm-up characteristics.....	5
1.4.5	Electrical characteristics.....	6
1.4.6	Photometric characteristics	6
1.4.7	Red ratio (fluorescent coated lamps only)	6
1.4.8	Lamp stability with rapidly reduced supply voltage	6
1.5	Information for luminaire design	7
	Annex A (normative) Method of measuring starting and warm-up characteristics.....	8
	Annex B (normative) Method of measuring electrical and photometric characteristics.....	9
	Annex C (normative) Method of measuring the red ratio.....	11
	Annex D (informative) Information for luminaire design	13
	Bibliography	14
2	Data Sheets	15
2.1	General principles of numbering sheets.....	15
2.2	Lists of data sheets.....	15
2.2.1	List of lamp data sheets	15
2.2.2	List of maximum lamp outline sheets	16

HIGH-PRESSURE MERCURY VAPOUR LAMPS – PERFORMANCE SPECIFICATIONS

1 General

1.1 Scope

This standard specifies the performance requirements for high-pressure mercury vapour lamps for general lighting purposes, with or without a red correcting fluorescent coating.

For some of the requirements given in this standard, reference is made to “the relevant lamp data sheet”. For some lamps these data sheets are contained in this standard. For other lamps, falling under the scope of this standard, the relevant data are supplied by the lamp manufacturer or responsible vendor.

The requirements of this standard relate only to type testing.

NOTE The requirements and tolerances permitted by this standard correspond to testing of a type test sample submitted by the manufacturer for that purpose. In principle this type test sample should consist of units having characteristics typical of the manufacturer's production and being as close to the production centre point values as possible.

It may be expected with the tolerances given in the standard that products manufactured in accordance with the type test sample will comply with the standard for the majority of production. Due to the production spread however, it is inevitable that there will sometimes be products outside the specified tolerances. For guidance on sampling plans and procedures for inspection by attributes, see IEC 60410.

1.1.Z1 Overall statement

Where a Commission Regulation specifies limits for parameters these limits shall be used instead of the limits specified in this standard. 

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to or revisions of, these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(845), *International Electrotechnical Vocabulary (IEV) – Chapter 845: Lighting*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60923, *Auxiliaries for lamps – Ballasts for discharge lamps (excluding tubular fluorescent lamps) – Performance requirements*

IEC 62035, *Discharge lamps (excluding fluorescent lamps) – Safety specifications*

1.3 Definitions

For the purposes of this International Standard, the following terms and definitions, as well as others given in IEC 60050(845), apply

1.3.1

high pressure mercury (vapour) lamp

high intensity discharge lamp in which the major portion of the light is produced, directly or indirectly, by radiation from mercury operating at a partial pressure in excess of 100 kilopascals

NOTE This term covers clear, phosphor coated (mercury fluorescent) and blended lamps. In a fluorescent mercury discharge lamp, the light is produced partly by the mercury vapour and partly by a layer of phosphors excited by the ultraviolet radiation of the discharge.

[IEV 845-07-20]

1.3.2

nominal value

approximate quantity value used to designate or identify a lamp

1.3.3

rated value

quantity value for a characteristic of a lamp for specified operating conditions. The value and the conditions are specified in this standard, or assigned by the manufacturer or responsible vendor

1.3.4

lamp starting voltage

r.m.s. voltage at lamp terminals at which the lamp starts

1.3.5

minimum open circuit voltage for stable operation

minimum open circuit voltage to be provided by an inductive ballast for stable operation of the lamp

1.3.6

initial readings

starting and warm-up characteristics of a lamp, measured before ageing, and the electrical and photometric characteristics of a lamp, measured at the end of the ageing period

1.3.7

red ratio

ratio of the luminous flux emitted by the lamp in the red portion of the visible spectrum to the total luminous flux of the lamp. For the purposes of this standard, the red portion is defined by the part of the visible spectrum comprising the wavelengths above 600 nm

1.3.8

reference ballast

special inductive type ballast, designed for the purpose of providing comparison standards for use in testing ballasts, for the selection of reference lamps and for testing regular production lamps under standardised conditions. It is essentially characterized by the fact that at its rated frequency, it has a stable voltage/current ratio which is relatively uninfluenced by variations in current, temperature and magnetic surroundings, as outlined in the relevant ballast standard