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

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

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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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

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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– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2004-07-01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.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

Publication	Year	Title	EN/HD	Year
IEC 60050-845	- [1)]	International Electrotechnical Vocabulary (IEV) Chapter 845: Lighting	-	-
IEC 60061-1 (mod)	- [1)]	Lamp caps and holders together with gauges for the control of interchangeability and safety Part 1: Lamp caps	EN 60061-1	1993 [2)]
IEC 60923	- [1)]	Auxiliaries for lamps - Ballasts for discharge lamps (excluding tubular fluorescent lamps) - Performance requirements	EN 60923	1996 [2)]
IEC 62035 (mod)	- [1)]	Discharge lamps (excluding fluorescent lamps) - Safety specifications	EN 62035	2000 [2)]

[1)] undated reference.

[2)] valid edition at date of issue.

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High-pressure mercury vapour lamps – Performance specifications

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-PRESSURE MERCURY VAPOUR LAMPS – PERFORMANCE SPECIFICATIONS

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60188 has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

This third edition cancels and replaces the second edition published in 1974, amendment 1 (1976), amendment 2 (1979), amendment 3 (1984), amendment 4 (1988) and amendment 5 (1991).

The text of this standard is based on the following documents:

FDIS	Report on voting
34A/952/FDIS	34A/954/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A, B and C form an integral part of this standard.

Annex D is for information only.

The committee has decided that the contents of this publication will remain unchanged until 2005-12. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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.

1.2 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 kilo-pascals

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

1.3.9
calibration current of a reference ballast
value of the current on which the calibration and control of the reference ballast are based

1.3.10
type test
test or a series of tests made on a type test sample for the purpose of checking compliance of the design of a given product with the requirements of the relevant standard

1.3.11
type test sample
sample consisting of one or more similar units submitted by the manufacturer or the responsible vendor for the purpose of a type test

1.4 Lamp requirements

1.4.1 General

A lamp, on which compliance with this standard is claimed, shall comply with the requirements of IEC 62035.

A lamp shall be so designed that its performance is reliable in normal and accepted use. In general, this can be achieved by satisfying the requirements of the following subclauses.

The requirements given apply to 95 % of production.

For the purposes of this standard, the following designations are used as a classification according to the rated voltage at lamp terminals:

- Lamp voltage range 70 V – 180 V Designation: HV
- Lamp voltage range >180 V Designation: EHV

1.4.2 Dimensions

The dimensions of a lamp shall comply with the values specified on the relevant lamp data sheet.

1.4.3 Caps

The cap on a finished lamp shall comply with IEC 60061-1.

1.4.4 Starting and warm-up characteristics

A lamp shall start within the starting time specified on the relevant lamp data sheet and remain alight for at least 1 min.

A lamp shall achieve the warm-up voltage at lamp terminals within the warm-up time specified on the relevant lamp data sheet

The tests shall be made before ageing, using the measuring method given in annex A.

NOTE Normally it should be expected that at 100 % of the rated supply voltage, lamps will start satisfactorily at temperatures down to –18 °C.