
Safety specifications for incandescent lamps - Part 1: Tungsten filament lamps for domestic and similar general lighting purposes (IEC 432-1:1993, modified)

Safety specifications for incandescent lamps -- Part 1: Tungsten filament lamps for domestic and similar general lighting purposes

Sicherheitsanforderungen an Glühlampen -- Teil 1: Glühlampen für den Hausgebrauch und ähnliche allgemeine Beleuchtungszwecke

Prescriptions de sécurité pour lampes à incandescence -- Partie 1: Lampes à filament de tungstène pour usage domestique et éclairage général similaire

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Ta slovenski standard je istoveten z: EN 60432-1:1994

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en

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EUROPEAN STANDARD

EN 60432-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 1994

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Supersedes EN 60432:1988 + amendments

Descriptors: Lighting equipment, incandescent lamp, tungsten filament lamp, safety, interchangeability, specification, protection against live parts, quality control, marking

English version

**Safety specifications for incandescent lamps
Part 1: Tungsten filament lamps for domestic
and similar general lighting purposes
(IEC 432-1:1993, modified)**

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This European Standard was approved by CENELEC on 1994-12-06. 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, 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

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

Foreword

The text of the International Standard IEC 432-1:1993, prepared by SC 34A, Lamps, of IEC TC 34, Lamps and related equipment, together with common modifications prepared by CENELEC Reporting Secretariat SR 34A, was submitted to the formal vote and was approved by CENELEC as EN 60432-1 on 1994-12-06.

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) 1995-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1995-12-01

For products which have complied with EN 60432:1988 and its amendments A1:1989 and A2:1993 before 1995-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-12-01.

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

Annexes designated "informative" are given for information only.

In this standard, annexes A through J and ZA are normative and annex K is informative. Annex ZA has been added by CENELEC.

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Endorsement notice

SIST EN 60432-1:1995

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The text of the International Standard IEC 432-1:1993 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

Lamps with the following caps are excluded from this European Standard as they do not comply with European safety requirements.

E12
E17
E26

ANNEX ZA (normative)

OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD
WITH THE REFERENCES OF THE RELEVANT 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.

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

IEC Publication	Date	Title	EN/HD	Date
61-1	1969	Lamp caps and holders together with gauges for the control of interchangeability and safety Part 1: Lamp caps	EN 60061-1*	1993
61-3	1969	Part 3: Gauges	EN 60061-3*	1993
64	1987	Tungsten filament lamps for domestic	EN 60064	1989
A1	1988	and similar general lighting purposes Performance requirements	A1	1989
360	1987	Standard method of measurement of lamp cap temperature rise	EN 60360	1989
410	1973	Sampling plans and procedures for inspection by attributes	-	-
598-1 (mod)	1992	Luminaires - Part 1: General requirements and tests	EN 60598-1	1993
887	1988	Glass bulb designation system for lamps	-	-

Other publications:

ISO 468:1982 - Surface roughness - Parameters, their values and general rules for specifying requirements

ISO 3951:1989 - Sampling procedures and charts for inspection by variables for percent nonconforming

* EN 60061-1 includes supplements A:1970 to N:1992 to IEC 61-1

* EN 60061-3 includes supplements A:1970 to M:1992 to IEC 61-3

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INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
432-1**

Première édition
First edition
1993-09

**Prescriptions de sécurité pour lampes
à incandescence**

Partie 1:

**Lampes à filament de tungstène pour usage
domestique et éclairage général similaire**
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Part 1:

**Tungsten filament lamps for domestic and
similar general lighting purposes**

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International Electrotechnical Commission
Международная Электротехническая Комиссия

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For price, see current catalogue

CONTENTS

	Page
FOREWORD	5
SECTION 1: GENERAL	
Clause	
1.1 Scope	7
1.2 Normative references	9
1.3 Definitions	9
SECTION 2: REQUIREMENTS	
2.1 General	13
2.2 Marking	13
2.3 Protection against accidental contact in screw lampholders	15
2.4 Lamp cap temperature rise (Δt_s)	17
2.5 Resistance to torque	21
2.6 Insulation resistance of B15d, B22d, E26/50×39 and E27/51×39 capped lamps and other lamps having insulated skirts	23
2.7 Accidentally live parts	23
2.8 Creepage distance for B15d and B22d capped lamps	25
2.9 Safety at end of life	25
2.10 Interchangeability	27
2.11 Information for luminaire design	27
SECTION 3: ASSESSMENT	
3.1 General	29
3.2 Whole production assessment by means of the manufacturer's records	29
3.3 Assessment of the manufacturer's records of particular tests	31
3.4 Rejection conditions of batches	37
3.5 Sampling procedures	37
ANNEXES	
A Miscellaneous test procedures	41
B Packaging marking symbols	43
C Resistance to torque test procedures	45
D Induced-failure test	51
E Operation-to-failure test	57
F Acceptance numbers for various sample sizes and AQLs	61
G Acceptance criteria – Continuously variable results	67
H Induced-failure test – Grouping, sampling and compliance	71
J Method of measuring mains impedance	79
K Information for luminaire design	83

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SAFETY SPECIFICATIONS
FOR INCANDESCENT LAMPS**

**Part 1: Tungsten filament lamps
for domestic and similar general lighting purposes**

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 cooperation 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, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, 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.

International Standard IEC 432-1 has been prepared by sub-committee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

This first edition cancels and replaces the second edition of 432 and its amendments 1: 1985, 2: 1987, 3: 1988 and 4: 1991, published in 1984 and constitutes a technical revision.

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

DIS	Report on Voting
34A(CO)637	34A(CO)693

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

Annexes A through J form an integral part of this standard.

Annex K is for information only.

SAFETY SPECIFICATIONS FOR INCANDESCENT LAMPS

Part 1: Tungsten filament lamps for domestic and similar general lighting purposes

Section 1: General

1.1 Scope

International Standard IEC 432-1 specifies the safety and interchangeability requirements of tungsten filament incandescent lamps for general lighting service having:

- rated wattage up to and including 200 W;
- rated voltage of 50 V to 250 V inclusive;
- bulbs of the A, B, C, G, M, P, PS, PAR or R shapes*, or other bulb shapes where the lamps are intended to serve the same purpose as lamps with the foregoing bulb shapes;
- bulbs with all kinds of finishes;
- caps B15d, B22d, E12, E14, E17, E26**, E26d, E26/50×39, E27, or E27/51×39.

This standard specifies the method a manufacturer should use to show that his product conforms to this standard on the basis of whole production appraisal in association with his test records on finished products. This method can also be applied for certification purposes. Details of a batch test procedure which can be used to make limited assessment of batches are also given.

Requirements for batch testing are included in order to enable the assessment of batches presumed to contain unsafe lamps. As some safety requirements cannot be checked by batch testing and as there may be no previous knowledge of the manufacturer's quality, batch testing cannot be used for certification purposes nor in any way for an approval of the batch. Where a batch is found to be acceptable, a testing agency may only conclude that there is no reason to reject the batch on safety grounds.

This standard is concerned with safety criteria only and does not take into account the performance of tungsten filament lamps with respect to luminous flux, life or power consumption characteristics. Readers should refer to IEC 64 for such characteristics with respect to types normally used for general lighting service.

* See IEC 887 for description of the letter symbols. Associated traditional names are:

- | | |
|-----------------------|---------------------------|
| - Pear shape | = A, PS |
| - Mushroom | = M |
| - Candle | = B, C (in North America) |
| - Round bulb | = P |
| - Globular | = G |
| - Reflector | = R |
| - Parabolic reflector | = PAR |

** There are two variations of E26 caps which are not fully compatible. In this standard separate references are made to E26/24 caps used in North America and E26/25 caps used in Japan.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 61-1: 1969, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 61-3: *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges*

IEC 64: 1987, *Tungsten filament lamps for domestic and similar general lighting purposes. Performance requirements. Amendment No.1, 1988*

IEC 360: 1987, *Standard method of measurement of lamp cap temperature rise*

IEC 410: 1973, *Sampling plans and procedures for inspection by attributes*

IEC 598-1: 1992, *Luminaires – Part 1: General requirements and tests*

IEC 887: 1988, *Glass bulb designation system for lamps*

ISO 468: 1982, *Surface roughness – Parameters, their values and general rules for specifying requirements*

ISO 3951: 1989, *Sampling procedures and charts for inspection by variables for percent nonconforming*

1.3 Definitions

For the purposes of this International Standard, the following definitions apply.

1.3.1 **category:** All lamps of one manufacturer having the same general construction (bulb shape, external dimensions, cap type, filament type), rated voltage, wattage rating and finish.

For the purposes of this standard:

- a) clear, frosted and coatings equivalent to a frosted finish are considered to be the same;
- b) various coloured and white finishes are not considered to be the same.

NOTE - Lamps differing only by their caps (e.g. E27 and B22d) are of different "categories", but of the same "type" as defined in IEC 64.

1.3.2 **type:** Lamps which, independent of the type of cap, are identical in photometric and electrical ratings.

1.3.3 **class:** All lamps of one manufacturer having the same general construction (bulb shape, external dimensions, cap type, filament type), wattage rating and finish and differing only by their rated voltages, when these voltages fall within the same voltage range (e.g. 100 V to 150 V, 200 V to 250 V).

1.3.4 **rated voltage:** Voltage or voltage range specified in the relevant lamp standard or assigned by the manufacturer or responsible vendor.

(If lamps are marked with a voltage range, it shall be interpreted that they are appropriate for use on any supply voltage within that range.)

1.3.5 **test voltage:** Rated voltage unless otherwise specified.

(If lamps are marked with a voltage range, the test voltage shall be taken as the mean of the voltage range unless otherwise specified.)

1.3.6 **rated wattage:** Wattage specified in the relevant lamp standard or assigned by the manufacturer or responsible vendor.

1.3.7 **end of life:** Instant when the energized lamp ceases to emit light.

1.3.8 **cap temperature rise (Δt_s):** Surface temperature rise, above ambient temperature, of a standard test lampholder fitted to the lamp's cap, when measured in accordance with the standard method described in IEC 360.

1.3.9 **design test:** Test, made on a sample, for the purpose of checking compliance of the design of a category, class or group of categories with the requirements of the relevant clause.

1.3.10 **periodic test:** Test repeated at intervals in order to check that the product does not deviate in certain respects from the given design.

1.3.11 **running test:** Test applied at frequent intervals to provide data for assessment.

1.3.12 **batch:** All the lamps of one category, identified as such, and put forward at one time for checking compliance.

1.3.13 **whole production:** Production of all types of lamps within the scope of this standard manufactured during a period of 12 months and nominated by the manufacturer in a list for inclusion in the control, this list being incorporated in the certificate when certification is in operation.

1.3.14 **bowl mirror lamp:** Lamp with part of its bulb coated with reflecting material so as to reflect a substantial part of the light in the general direction of the lamp cap.

1.3.15 **maximum cap temperature:** Maximum temperature for which the components in the cap area of a lamp are designed to withstand over the expected life of the lamp.

1.3.16 **lamp neck reference diameter:** That diameter of a lamp which is of influence on the protection against accidental contact and which is measured at a defined distance from the solder contact plate. For example:

- for E27 capped lamps, this distance is 32 mm;
- for E14 capped lamps, this distance is 30 mm.

Section 2: Requirements

2.1 General

Lamps shall be so designed and constructed that in normal use they present no danger to the user or surroundings.

Lamps shall satisfy the requirements of section 2.

2.2 Marking

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2.2.1 The following information shall be marked on the lamps and shall be legible and durable when subjected to the test procedure in clause A.1:

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- a) mark of origin (this may take the form of a trademark, the manufacturer's name or the name of the responsible vendor);
 - b) the rated voltage or the rated voltage range, marked as "V" or "volts";
 - c) the rated wattage marked as "W" or "watts".

For lamps with 40 mm diameter bulbs or larger and with a realized wattage of 14 W or less, the wattage need not be marked.

2.2.2 *Dichroic reflectorized (cool beam) lamps and bowl mirror lamps*

The immediate lamp wrapping or container shall be marked with the relevant symbol as shown in annex B.

2.2.3 *Lamps with operating position limitations*

For lamps requiring operating position limitations, such as some 60 W candle and round bulbs capped with B22d or E27 caps which can comply with the requirement of the lamp cap temperature rise only by excluding the cap-up position, the immediate lamp wrapping or container shall be marked with the appropriate symbol. An example is shown in annex B.

NOTE - The requirements in 2.2.2 and 2.2.3 are intended as information for the end-user of the lamp.