



BSI Standards Publication

Miscellaneous lampholders

Part 1: General requirements and tests (IEC 60838-1:2016)

This is a preview of "BS EN 60838-1:2017+A...". [Click here to purchase the full version from the ANSI store.](#)

National foreword

This British Standard is the UK implementation of EN 60838-1:2017, including amendment A1:2017. It is identical to IEC 60838-1:2016, including amendment 1:2017. It supersedes BS EN 60838-1:2017, which is withdrawn.

The text of IEC amendment 1:2017 has been provided in its entirety at the beginning of this document. BSI's policy of providing consolidated content remains unchanged; however, in the interest of expediency, in this instance BSI have chosen to collate the relevant content at the beginning of this document.

The UK participation in its preparation was entrusted to Technical Committee CPL/34/2, Lamp caps and holders.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Amendments/corrigenda issued since publication

| Date | Text affected |
|---------------|---|
| 31 March 2018 | Implementation of IEC amendment 1:2017 with CENELEC endorsement A1:2017 |

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EUROPÄISCHE NORM

April 2017

ICS 29.140.10

Supersedes EN 60838-1:2004

English Version

Miscellaneous lampholders -
Part 1: General requirements and tests
(IEC 60838-1:2016)

Douilles diverses pour lampes - Partie 1: Exigences
générales et essais
(IEC 60838-1:2016)

Sonderfassungen - Teil 1: Allgemeine Anforderungen und
Prüfungen
(IEC 60838-1:2016)

This European Standard was approved by CENELEC on 2016-06-23. 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 members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

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

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The text of document 34B/1850A/FDIS, future edition 5 of IEC 60838-1, prepared by SC 34B "Lamp caps and holders" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60838-1:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-10-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-04-28

This document supersedes EN 60838-1:2004.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] 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.

Endorsement notice

The text of the International Standard IEC 60838-1:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

| | | |
|----------------|------|------------------------------|
| IEC 60061-1 | NOTE | Harmonized as EN 60061-1. |
| IEC 60061-4 | NOTE | Harmonized as EN 60061-4. |
| IEC 60068-2-20 | NOTE | Harmonized as EN 60068-2-20. |

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EUROPÄISCHE NORM

August 2017

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English Version

**Miscellaneous lampholders - Part 1: General requirements and tests
(IEC 60838-1:2016/A1:2017)**

Douilles diverses pour lampes - Partie 1: Exigences
générales et essais
(IEC 60838-1:2016/A1:2017)

Sonderfassungen - Teil 1: Allgemeine Anforderungen und
Prüfungen
(IEC 60838-1:2016/A1:2017)

This amendment A1 modifies the European Standard EN 60838-1:2017; it was approved by CENELEC on 2017-03-09. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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

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The text of document 34B/1888/FDIS, future IEC 60838-1:2016/A1, prepared by SC 34B "Lamp caps and holders" of IEC/TC 34 "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60838-1:2017/A1:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-02-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-08-04

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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 Directive(s).

For the relationship with EU Directive see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 60838-1:2016/A1:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

| | | |
|------------------|------|--------------------------------|
| IEC 60664-4:2005 | NOTE | Harmonized as EN 60664-4:2006. |
| IEC 61347-1:2015 | NOTE | Harmonized as EN 61347-1:2015. |

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(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> |
|--------------------|-------------|---|---------------|-------------|
| IEC 60061 | Series | Lamp caps and holders together with gauges for the control of interchangeability and safety | EN 60061 | Series |
| IEC 60061-2 | - | Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lampholders | EN 60061-2 | - |
| IEC 60061-3 | - | Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges | EN 60061-3 | - |
| IEC 60068-2-75 | 2014 | Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests | EN 60068-2-75 | 2014 |
| IEC 60112 | 2003 | Method for the determination of the proof and the comparative tracking indices of solid insulating materials | EN 60112 | 2003 |
| +A1 | 2009 | | +A1 | 2009 |
| IEC 60227 | Series | Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V | | - |
| IEC 60238 | - | Edison screw lampholders | EN 60238 | - |
| IEC 60245 | Series | Rubber insulated cables - Rated voltages up to and including 450/750 V | - | - |
| IEC 60352-1 | - | Solderless connections - Part 1: Wrapped connections - General requirements, test methods and practical guidance | EN 60352-1 | - |
| IEC 60399 | - | Barrel thread for lampholders with shade holder ring | EN 60399 | - |
| IEC 60417-DB | - | Graphical symbols for use on equipment | - | - |

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| | | | | |
|-------------------|------|--|---------------|------|
| IEC 60529 | 1989 | Degrees of protection provided by enclosures (IP Code) | EN 60529 | 1991 |
| +A1 | 1999 | | + corr. May | 1993 |
| +A2 | 2013 | | +A1 | 2000 |
| | | | +A2 | 2013 |
| IEC 60598-1 (mod) | 2014 | Luminaires - Part 1: General requirements and tests | EN 60598-1 | 2015 |
| IEC 60664-1 | - | Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests | EN 60664-1 | - |
| IEC 60695-2-11 | - | Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products (GWEPT) | EN 60695-2-11 | - |
| IEC 60695-11-5 | - | Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance | EN 60695-11-5 | - |
| ISO 1456 | - | Metallic and other inorganic coatings - Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and of copper plus nickel plus chromium | EN ISO 1456 | - |
| ISO 2081 | - | Metallic and other inorganic coatings - Electroplated coatings of zinc with supplementary treatments on iron or steel | EN ISO 2081 | - |
| ISO 2093 | - | Electroplated coatings of tin; Specification and test methods | - | - |
| ISO 4046-4 | 2002 | Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products | - | - |

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Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European standard has been prepared under a Commission's standardisation request relating to harmonised standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 – Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

| Safety objectives of Directive 2014/35/EU | Clause(s) / sub-clause(s) of this EN | Remarks / Notes |
|---|--------------------------------------|-----------------|
| 1. General conditions | | |
| a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document; | Clause 7 | |
| b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected; | All clauses | |
| c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained. | See item 2 and 3 of this table | |
| 2. Protection against hazards arising from the electrical | | |

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| | | |
|--|------------------------------------|--|
| shall be laid down in accordance with point 1, in order to ensure that: | | |
| a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact; | Clauses 4, 8, 9, 10, 11, 12 and 14 | |
| b) temperatures, arcs or radiation which would cause a danger, are not produced; | Clauses 11, 12, 15, 16 and 17 | |
| c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience; | Clauses 4, 11, 13, 16 and 18 | |
| d) the insulation is suitable for foreseeable conditions. | Clauses 8, 10, 11, 13, 15 and 17 | |
| 3. Protection against hazards which may be caused by external influences on the electrical equipment Technical measures shall be laid down in accordance with point 1, in order to ensure that the electrical equipment: | | |
| a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered; | Clauses 7, 11, 13 and 18 | |
| b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered; | Clauses 11, 12, 15 and 17 | |
| c) does not endanger persons, domestic animals and property in foreseeable conditions of overload. | Clauses 11, 12 and 17 | |

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.

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

**Miscellaneous lampholders –
Part 1: General requirements and tests**

**Douilles diverses pour lampes –
Partie 1: Exigences générales et essais**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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FOREWORD

This amendment has been prepared by subcommittee 34B Lamp caps and holders, of IEC technical committee 34 Lamps and related equipment.

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

| FDIS | Report on voting |
|---------------|------------------|
| 34B/1888/FDIS | 34B/1891/RVD |

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

3 Terms and definitions

Replace definition 3.6 with the following new definition:

3.6

rated ignition voltage

highest peak value of an ignition pulse voltage the holder is able to withstand

Replace definition 3.20 with the following new definition:

3.20

polarized lampholder

lampholder for building-in specially designed for asymmetric ignition voltages, where the rated ignition voltage (higher rated ignition voltage) is designated to a fixed contact

Add, at the end of Clause 3, the following new terms and definitions:

3.23

critical frequency

f_{crit}

frequency at which the reduction of the breakdown voltage of a clearance begins (occurs)

Note 1 to entry: $f_{crit} \approx 0,2/d$ [MHz] where d (in mm) is the clearance according to Table 3 (basic or supplementary insulation and reinforced insulation respectively) disregarding the frequency.

[SOURCE: IEC 61347-1:2015, 3.40, modified — the note has been added]

3.24

ignition voltage

peak voltage applied to ignite a discharge lamp

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[SOURCE: IEC 61347-1:2015, 3.46]

3.24.1 ignition pulse voltage

peak ignition voltage with a total duration of $\leq 750 \mu\text{s}$ (summation of all pulse durations) within 10 ms, with the duration time (width) of each pulse being measured at the level of 50% of the maximum absolute peak value

Note 1 to entry: Ignition pulse waveforms, which are considered as ignition pulse voltage, should not contain any dominant frequency above 30 kHz or should be usually highly damped (after 20 μs the peak voltage level should be less than one half of the maximum peak voltage). For the assessment of the dominant frequency IEC 60664-4:2005, Annex E should be consulted.

[SOURCE: IEC 61347-1:2015, 3.46.1]

3.25 maximum working voltage

U_{out}
maximum occurring working voltage (r.m.s.) between the output terminals of a controlgear or between the output terminals and earth, during normal or abnormal operating condition

Note 1 to entry: Transients and ignition voltages have to be neglected.

[SOURCE: IEC 61347-1:2015, 3.33, modified — "of a controlgear" has been added]

3.26 maximum working peak output voltage

\hat{U}_{out}
maximum repetitive occurring peak working voltage between the output terminals of a controlgear or between its output terminals and earth, during normal or abnormal operating condition and with transients neglected

[SOURCE: IEC 61347-1:2015, 3.45, modified — "of a controlgear" has been added]

3.27 equivalent transformed peak voltage

U_p
transformed output peak voltage, which is converted for the worst case peak voltage with its related frequency into an ignition pulse voltage

Note 1 to entry: The value of the declared equivalent transformed output peak voltage is the essential parameter for selecting the associated components

Note 2 to entry: See 3.24.1

Note 3 to entry: To determine the declared equivalent transformed output peak voltage for basic insulation U_p [basic] the worst case combination of the maximum occurring peak voltage and frequency has to be taken into account, which means the maximum clearance according to IEC 61347-1:2015, Table 10 for basic insulation.

Note 4 to entry: To determine the declared equivalent transformed output peak voltage for the reinforced insulation U_p [reinforced] the worst case combination of the maximum occurring peak voltage and frequency has to be taken into account, which means the maximum clearance according to IEC 61347-1:2015, Table 11 for reinforced insulation.

[SOURCE: IEC 61347-1:2015, 3.47]

7 Marking

7.2

Replace item a) including the note with the following new item a) and note:

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- a) the rated voltage in volts and rated ignition voltage in kilovolts (kV), if applicable. For polarized lampholders the rated voltage in volts and the pair of rated ignition voltages;

NOTE 1 Some lampholders still show rated voltages higher than 500 V. This is an earlier way of expressing the permissible ignition voltage via a rated voltage. For such lampholders, the creepage distances and clearances can be found in IEC 60598-1.

Replace item e) with the following new item e):

- e) the high voltage arrow (see IEC 60417-5036:2002-10) for polarized lampholders to identify the connection for the higher ignition voltage, if applicable. It shall be visible close to the relevant terminal or wire entry during lampholder installation.

Replace, in the third paragraph, the last dashed list item with the following new text:

- high ignition voltage terminal/wire on polarized lampholders:  (see IEC 60417-5036:2002-10)

Replace the fourth paragraph with the following new text:

For the rated ignition voltage, the symbol shall be preceded by its value (e.g. 5 kV). For polarized lampholders the two rated ignition voltages shall be separated by an oblique stroke (e.g. 15/2,5 kV).

NOTE 3 The figure marked before the oblique stroke represents the higher ignition voltage, the figure behind represents the rated ignition voltage at least based on the impulse withstand category of the lampholder.

7.3

Replace the first paragraph with the following new text:

The instructions supplied by the holder manufacturer or responsible vendor shall contain all the information required to ensure correct mounting and operation of the connectors or holders. (For example information regarding UV radiation, frequency limitations, increased creepage distances, PTI or the like)

15 Creepage distances and clearances

Replace Table 2a with the following new Table 2a:

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Table 2a – Minimum distances for AC sinusoidal voltages up to 30 kHz – Impulse withstand category II

| Distances mm | Rated voltage V | | | |
|---|--------------------|-----|-----|-----|
| | 50 | 150 | 250 | 500 |
| Basic insulation | | | | |
| 1 Distances between live parts of different polarity, and | | | | |
| 2 Distances between live parts and external metal parts, mounting surfaces, loose metal cover, if any, the outer surface of parts of insulating material which are permanently fixed to the holder ^a , including screws or devices for fixing covers or fixing the holder to its support: | | | | |
| – Creepage distances | | | | |
| insulation PTI ≥ 600 ^b | 0,6 | 0,8 | 1,5 | 3 |
| PTI < 600 ^b | 1,2 | 1,6 | 2,5 | 5 |
| – Clearances ^c | 0,2 | 0,5 | 1,5 | 3 |
| Reinforced insulation | | | | |
| Distances between live parts and external metal parts, mounting surfaces, loose metal cover, if any, the outer surface of parts of insulating material which are permanently fixed to the holder ^a , including screws or devices for fixing covers or fixing the holder to its support: | | | | |
| – Creepage distances | | | | |
| insulation PTI ≥ 600 ^b | - | 1,6 | 3 | 5,5 |
| PTI < 600 ^b | - | 3,2 | 5 | 10 |
| – Clearances ^c | 0,4 | 1,6 | 3 | 5,5 |
| Values for creepage distances may be found for intermediate values of rated voltages by linear interpolation between tabulated values. No values are specified for rated voltages below 25 V AC and 60 V DC ripple free as the voltage test of 12.2.2 is considered sufficient. Creepage distances shall not be less than the required minimum clearance. | | | | |
| In Japan, the values given in the table are not applicable. Japan requires larger values than the values given in the table. | | | | |
| ^a The distances between live contacts and the lampholder face (reference plane) shall, however, be in accordance with the relevant standard sheets of IEC 60061-2. | | | | |
| ^b PTI (proof tracking index) in accordance with IEC 60112:2003 and IEC 60112:2003/AMD1:2009. | | | | |
| – In the case of creepage distances to parts not energized or not intended to be earthed, where no tracking can occur, the values specified for material with PTI ≥ 600 apply for all materials (in spite of the real PTI). | | | | |
| – For creepage distances subjected to working voltages of less than 60 s duration, the values specified for material with PTI ≥ 600 apply for all materials. | | | | |
| – For creepage distances not liable to contamination by dust or moisture, the values specified for material with PTI ≥ 600 apply for all materials (independent of the real PTI). | | | | |
| – For creepage distances, the equivalent DC voltage is equal to the r.m.s. value of the sinusoidal AC voltage. | | | | |
| ^c For clearances, the equivalent DC voltage is equal to the peak of the AC voltage. | | | | |

Replace Table 2b with the following new Table 2b:

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Table 2b – Minimum distances for AC sinusoidal voltages up to 30 kHz – Impulse withstand category III

| Distances mm | Rated voltage V | | | |
|---|------------------------|-----|-----|-----|
| | 50 | 150 | 250 | 500 |
| Basic insulation | | | | |
| 1 Distances between live parts of different polarity | | | | |
| – Creepage distances | | | | |
| insulation PTI \geq 600 ^b | 0,6 | 0,8 | 1,5 | 3 |
| PTI < 600 ^b | 1,2 | 1,6 | 2,5 | 5 |
| – Clearances ^c | 0,2 | 0,5 | 1,5 | 3 |
| 2 Distances between live parts and external metal parts, mounting surfaces, loose metal cover, if any, the outer surface of parts of insulating material which are permanently fixed to the holder ^a , including screws or devices for fixing covers or fixing the holder to its support: | | | | |
| – Creepage distances | | | | |
| insulation PTI \geq 600 ^b | 0,6 | 1,5 | 3 | 5,5 |
| PTI < 600 ^b | 1,2 | 1,6 | 3 | 5,5 |
| – Clearances ^c | 0,2 | 1,5 | 3 | 5,5 |
| Reinforced insulation | | | | |
| Distances between live parts and external metal parts, mounting surfaces, loose metal cover, if any, the outer surface of parts of insulating material which are permanently fixed to the holder ^a , including screws or devices for fixing covers or fixing the holder to its support: | | | | |
| – Creepage distances | | | | |
| insulation PTI \geq 600 ^b | – | 3 | 5,5 | 8 |
| PTI < 600 ^b | – | 3,2 | 5,5 | 10 |
| – Clearances ^c | – | 3 | 5,5 | 8 |
| Values for creepage distances may be found for intermediate values of rated voltages by linear interpolation between tabulated values. No values are specified for rated voltages below 25 V AC and 60 V DC ripple free as the voltage test of 12.2.2 is considered sufficient. Creepage distances shall not be less than the required minimum clearance. | | | | |
| In Japan, the values given in the table are not applicable. Japan requires larger values than the values given in the table. | | | | |
| ^a The distances between live contacts and the lampholder face (reference plane) shall, however, be in accordance with the relevant standard sheets of IEC 60061-2. | | | | |
| ^b PTI (proof tracking index) in accordance with IEC 60112:2003 and IEC 60112:2003/AMD1:2009. | | | | |
| – In the case of creepage distances to parts not energized or not intended to be earthed, where no tracking can occur, the values specified for material with PTI \geq 600 apply for all materials (in spite of the real PTI). | | | | |
| – For creepage distances subjected to working voltages of less than 60 s duration, the values specified for material with PTI \geq 600 apply for all materials. | | | | |
| – For creepage distances not liable to contamination by dust or moisture, the values specified for material with PTI \geq 600 apply for all materials (independent of the real PTI). | | | | |
| – For creepage distances, the equivalent DC voltage is equal to the r.m.s. value of the sinusoidal AC voltage. | | | | |
| ^c For clearances, the equivalent DC voltage is equal to the peak of the AC voltage. | | | | |

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Replace, after Table 2b and the fifth paragraph, the existing text with the following new text:

NOTE 1 In case of combination of voltage and frequency (> 30 kHz) requiring higher creepage distances than the values required in Tables 2a and 2b, the controlgear is marked with the details of this combination (\dot{U}_{out} and its corresponding frequency $f_{U_{out}}$) – see IEC 61347-1:2015, 7.1, item w). For details and the required values for creepage distances see IEC 61347-1:2015, 16.2.

The clearances for the rated ignition voltage of the holder shall not be less than the values given in Table 3.

NOTE 2 Lampholders can be subjected to a working voltage higher than the rated voltage under the following conditions:

- The nominal voltage and the overvoltage category of the supply voltage does not exceed the rated values of the lampholder.
- The working voltage (r.m.s.) and the maximum repetitive peak working voltage (\dot{U}_{Out}) marked on the controlgear respectively do not specify a higher creepage distance than the rated voltage of the lampholder.
- The working voltage does not specify a higher clearance than the rated voltage and the rated ignition voltage of the lampholder.

Table 3 – Minimum distances for ignition pulse voltages or equivalent peak voltages U_p

| Rated ignition pulse voltage kV | Minimum clearance mm | |
|------------------------------------|-------------------------|-----------------------|
| | Basic insulation | Reinforced insulation |
| 2 | 1 | 2,2 |
| 2,5 | 1,5 | 3 |
| 3 | 2 | 3,8 |
| 4 | 3 | 6 |
| 5 | 4 | 8 |
| 6 | 5,5 | 10,4 |
| 8 | 8 | 15 |
| 10 | 11 | 19,4 |
| 12 | 14 | 24 |
| 15 | 18 | 31,4 |
| 20 | 25 | 44 |
| 25 | 33 | 60 |
| 30 | 40 | 72 |
| 40 | 60 | 98 |
| 50 | 75 | 130 |
| 60 | 90 | 162 |
| 80 | 130 | a |
| 100 | 170 | a |
| a | no values available | |

The distances specified in Table 3 are derived from IEC 60664-1 (inhomogeneous field conditions). For distances subjected to both sinusoidal voltage as well as ignition voltage, the minimum required distance shall be not less than the highest value indicated in either Table 2a, Table 2b or Table 3 relevant for the impulse voltage category.

NOTE 3 Ignition pulse voltages having total pulse duration of > 750 μ s or having a higher frequency than f_{crit} can require higher clearances although its peak value is lower than the rated ignition voltage of the lampholder.

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Therefore, the respective control gear is marked with an equivalent peak voltage (U_p) which is directly comparable to the rated ignition voltage of the lampholder.

For clearance distances without influence on safety, for example distances between the contacts, advantage might be taken from improved field conditions, but also in this case the values for the homogenous fields (see IEC 60664-1) remain the absolute minimum.

For polarized lampholders creepage distances and clearances to external metal parts or the outer surface of parts of insulating material may be designed and shall be checked for each pole separately. The distances between the contacts shall be designed according to the high ignition voltage.

Compliance is checked by tests with the rated pulse voltage of the holder. Voltage drops are not permissible.

Creepage distances shall be not less than the required minimum clearances.

Replace Annex E with the following new Annex E:

Annex E (informative)

Clauses containing new or more stringent requirements with respect to the previous edition

The schedule of clauses given in Annex E details the requirements of this Amendment 1 of IEC 60838-1:2016 which may require retesting to show compliance with this updated standard. Retesting may not be required in cases where examination of previous test results confirms conformity.

- a) Clause 15: Update on creepage distances and clearances for frequencies above 30 kHz and inclusion of U_{out} from controlgear.

Bibliography

Add the following new references:

IEC 60664-4:2005, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

IEC 61347-1:2015, *Lamp controlgear – Part 1: General and safety requirements*

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MISCELLANEOUS LAMPHOLDERS –

Part 1: General requirements and tests

FOREWORD

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International Standard IEC 60838-1 has been prepared by subcommittee 34B: Lamp caps and holders, of IEC technical committee 34: Lamps and related equipment.

This fifth edition cancels and replaces the fourth edition published in 2004, Amendment 1:2008 and Amendment 2:2011. This edition constitutes a technical revision.

The significant technical changes in this edition with respect to the previous edition include the introduction of new or revised requirements for single and dual contact ignition voltages, steel test caps and brass test caps and an Annex E listing amended requirements/clauses which require products to be retested.

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

| FDIS | Report on voting |
|----------------|------------------|
| 34B/1850A/FDIS | 34B/1856/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 2.

A list of all parts in the IEC 60838 series, published under the general title *Miscellaneous lampholders*, can be found on the IEC website.

In this standard, the following type is used:

– *compliance statements: in italic type.*

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

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MISCELLANEOUS LAMPHOLDERS –

Part 1: General requirements and tests

1 Scope

This part of IEC 60838 applies to lampholders of miscellaneous types intended for building-in (to be used with general purpose light sources, projection lamps, floodlighting lamps and street-lighting lamps with caps as listed in Annex A) and the methods of test to be used in determining the safe use of lamps in lampholders.

This part of IEC 60838 also covers lampholders which are integral with a luminaire. It covers the requirements for the lampholder only.

This part of IEC 60838 also covers lampholders integrated in an outer shell and dome similar to Edison screw lampholders. Such lampholders are further tested in accordance with the relevant clauses of IEC 60238.

Requirements for lampholders for tubular fluorescent lamps, Edison screw lampholders and bayonet lampholders are covered by separate standards.

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.

IEC 60061 (all parts), *Lamp caps and holders together with gauges for the control of interchangeability and safety* (available at <http://std.iec.ch/iec60061>)

IEC 60061-2, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 2: Lampholders*

IEC 60061-3, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 3: Gauges*

IEC 60068-2-75:2014, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*
IEC 60112:2003/AMD1:2009

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60238, *Edison screw lampholders*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*