



SLOVENSKI STANDARD
SIST EN 60400:2008

01-december-2008

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SIST EN 60400:2000/A1:2004

SIST EN 60400:2000/A2:2005

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Lampholders for tubular fluorescent lamps and starterholders (IEC 60400:2008)

Lampenfassungen für röhrenförmige Leuchtstofflampen und Starterfassungen (IEC 60400:2008)

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Douilles pour lampes tubulaires à fluorescence et douilles pour starters (CEI 60400:2008)

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Ta slovenski standard je istoveten z: EN 60400:2008

ICS:

29.140.10 Grla in držala žarnic Lamp caps and holders

SIST EN 60400:2008 en,fr

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60400

September 2008

ICS 29.140.10

Supersedes EN 60400:2000 + A1:2002 + A2:2004

English version

**Lampholders for tubular fluorescent lamps and starterholders
(IEC 60400:2008)**

Douilles pour lampes tubulaires
à fluorescence et douilles pour starters
(CEI 60400:2008)

Lampenfassungen für röhrenförmige
Leuchtstofflampen und Starterfassungen
(IEC 60400:2008)

This European Standard was approved by CENELEC on 2008-08-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 document 34B/1383/FDIS, future edition 7 of IEC 60400, 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 was approved by CENELEC as EN 60400 on 2008-08-01.

This European Standard supersedes EN 60400:2000 + A1:2002 + A1:2002/corrigendum July 2003 + A2:2004.

In EN 60400:2008, information on lampholders intended to be used in applications where they are accessible in normal use (class II luminaires as well as class I luminaries) has been introduced, as well as requirements for contact-making to pins for single-capped fluorescent lamps, introduction of new fits in the text and Annex A, and requirements for shade holder rings have been adopted.

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) 2009-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-08-01

In this standard, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

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Annex ZA has been added by CENELEC. [SIST EN 60400:2008](https://standards.iteh.ai/catalog/standards/sist/26ad10de-8067-4cf7-85e4-d9dc651f2484/sist-en-60400-2008)

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Endorsement notice

The text of the International Standard IEC 60400:2008 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 60061-4 NOTE Harmonized as EN 60061-4:1992 (modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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 60061-2 (mod)	- ¹⁾	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lampholders	EN 60061-2	1993 ²⁾
IEC 60061-3 (mod)	- ¹⁾	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges	EN 60061-3	1993 ²⁾
IEC 60068-2-20	1979	Environmental testing - Part 2-20: Tests - Test T: Soldering	HD 323.2.20 S3 ³⁾	1988
IEC 60068-2-75	1997	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60081	- ¹⁾	Double-capped fluorescent lamps - Performance specifications	EN 60081	1998 ²⁾
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60155	- ¹⁾	Glow-starters for fluorescent lamps	EN 60155	1995 ²⁾
IEC 60238	- ¹⁾	Edison screw lampholders	EN 60238 + corr. January	2004 ²⁾ 2005
IEC 60352-1	1997	Solderless connections - Part 1: Wrapped connections - General requirements, test methods and practical guidance	EN 60352-1	1997
IEC 60399	- ¹⁾	Barrel thread for lampholders with shade holder ring	EN 60399	2004 ²⁾
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
A1	1999		A1	2000

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ HD 323.2.20 S3 includes A2:1987 to IEC 60068-2-20:1979. It is superseded by EN 60068-2-20:2008, which is based on IEC 60068-2-20:2008.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60598-1 (mod)	- ¹⁾	Luminaires - Part 1: General requirements and tests	EN 60598-1	200X ⁴⁾
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60695-2-11	2000	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001
IEC 60695-11-5	2004	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC 61199	- ¹⁾	Single-capped fluorescent lamps - Safety specifications	EN 61199	1999 ²⁾
ISO 4046-4	2002	Paper, board, pulps and related terms - Vocabulary - Part 4: Paper and board grades and converted products	-	-

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⁴⁾ To be ratified.



IEC 60400

Edition 7.0 2008-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Lampholders for tubular fluorescent lamps and starterholders

Douilles pour lampes tubulaires à fluorescence et douilles pour starters

[SIST EN 60400:2008](https://standards.iteh.ai/catalog/standards/sist/26ad10de-8067-4cf7-85e4-d9dc651f2484/sist-en-60400-2008)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX

XC

ICS 29.140.10

ISBN 2-8318-9890-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LAMP HOLDERS FOR TUBULAR FLUORESCENT LAMPS
AND STARTER HOLDERS**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60400 has been prepared by subcommittee 34B: Lamp caps and holders, of IEC technical committee 34: Lamps and related equipment.

This seventh edition cancels and replaces the sixth edition (1999) and its Amendments 1 (2002) and 2 (2004). This seventh edition constitutes a technical revision.

In this edition, information on lampholders intended to be used in applications where they are accessible in normal use (class II luminaires as well as class I luminaries) has been introduced, as well as requirements for contact-making to pins for single-capped fluorescent lamps, introduction of new fits in the text and Annex A, and requirements for shade holder rings have been adopted.

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

FDIS	Report on voting
34B/1383/FDIS	34B/1399/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.

In this standard, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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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LAMP HOLDERS FOR TUBULAR FLUORESCENT LAMPS AND STARTER HOLDERS

1 General

1.1 Scope

This International Standard states the technical and dimensional requirements for lampholders for tubular fluorescent lamps and for starterholders, and the methods of test to be used in determining the safety and the fit of the lamps in the lampholders and the starters in the starterholders.

This standard covers independent lampholders and lampholders for building-in, used with tubular fluorescent lamps provided with caps as listed in Annex A, and independent starterholders and starterholders for building-in, used with starters in accordance with IEC 60155, intended for use in a.c. circuits where the working voltage does not exceed 1 000 V r.m.s.

This standard also covers lampholders for single-capped tubular fluorescent lamps integrated in an outer shell and dome similar to Edison screw lampholders (e.g. for G23 and G24 capped lamps). Such lampholders are tested in accordance with the following clauses and subclauses of IEC 60238: 8.4; 8.5; 8.6; 9.3; 10.7; 11; 12.2; 12.5; 12.6; 12.7; 13; 15.3; 15.4; 15.5 and 15.9.

This standard also covers lampholders which are integral with a luminaire or intended to be built into appliances. It covers the requirements for the lampholder only. For all other requirements, such as protection against electric shock in the area of the terminals, the requirements of the relevant appliance standard are to be observed and tested after building into the appropriate equipment, when that equipment is tested according to its own standard. Lampholders for use by luminaire manufacturers only are not for retail sale.

This standard also applies, as far as is reasonable, to lampholders and starterholders other than the types explicitly mentioned above and to lamp connectors.

Where the term "holder" is used in the standard, both lampholders and starterholders are intended.

1.2 Normative references

The following referenced documents are indispensable for the application 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.

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

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 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*

IEC 60068-2-75:1997, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60081, *Double-capped fluorescent lamps – Performance specifications*

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

IEC 60155, *Glow-starters for fluorescent lamps*

IEC 60238, *Edison screw lampholders*

IEC 60352-1:1997, *Solderless connections – Part 1: Wrapped connections – General requirements, test methods and practical guidance*

IEC 60399, *Barrel thread for lampholders with shade holder ring*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code) Amendment 1 (1999)*

IEC 60598-1, *Luminaires – Part 1: General requirements and tests*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60695-2-11:2000, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products*

IEC 60695-11-5:2004, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

IEC 61199, *Single-capped fluorescent lamps – Safety specifications*

ISO 4046-4:2002, *Paper, board, pulps and related terms – Vocabulary – Part 4: Paper and board grades and converted products*

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

rated voltage

voltage declared by the manufacturer to indicate the highest working voltage for which the holder is intended

2.2

working voltage

highest r.m.s. voltage which may occur across any insulation, transients being disregarded, both when the lamp or starter is operating under normal conditions and when the lamp or starter is removed

2.3

flexible lampholders for linear double-capped fluorescent lamps

pair of lampholders in which the base of each holder is rigidly mounted in the luminaire but which has one or both of the lampholders so designed as to allow axial movement of the contacts to provide compensation for variations in lamp lengths and, where necessary, to permit insertion and removal of the lamp

NOTE In case of doubt as to whether a lampholder G5 or G13 provides the required axial movement of the contacts, a test with the device shown in Figure 3 may be carried out.

2.4

inflexible lampholders for linear double-capped fluorescent lamps

pair of lampholders intended for rigid mounting and in which no axial movement of the contacts is provided or is needed, either for the insertion and removal of the lamp or as compensation for variation in lamp lengths

2.5

flexibly mounted lampholders for linear double-capped fluorescent lamps

pair of lampholders which do not in themselves provide for any axial movement of the contact system but which are intended to be mounted in a luminaire in a specified manner so that the combination provides the necessary axial movement of the contact system

NOTE Lampholders of this type may or may not also be suitable for rigid mounting.

2.6

lamp connectors

set of contacts mounted on flexible conductors which provide for electrical contact but do not support the lamp

2.7

holder for building-in

holder designed to be built into a luminaire, an additional enclosure or the like

2.7.1

unenclosed holder

holder for building-in so designed that it requires additional means, for example an enclosure, to meet the requirements of this standard with regard to protection against electric shock

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2.7.2

enclosed holder

holder for building-in so designed that on its own it fulfils the requirements of this standard with regard to protection against electric shock and IP classification, if appropriate

2.8

independent holder

holder so designed that it can be mounted separately from a luminaire and at the same time providing all the necessary protection according to its classification and marking

2.9

rated operating temperature

highest temperature for which the holder is designed

2.10

rated lampholder rearside temperature

rearside temperature for lampholders with T marking ascertained by test b) in 17.1, or a higher temperature as declared by the manufacturer

2.11

type test

test or 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

2.12

type test sample

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

2.13**live part**

conductive part which may cause an electric shock

2.14**rated pulse voltage**

highest peak value of the pulse voltages the holder is able to withstand

2.15**multilamp ballast**

electronic mains ballast designed and declared to comply for application of lamps with different keys

2.16**impulse withstand categorie**

numeral defining a transient overvoltage condition

NOTE Impulse withstand categories I, II, III and IV are used.

a) Purpose of classification of impulse withstand categories

Impulse withstand categories are to distinguish different degrees of availability of equipment with regard to required expectations on continuity of service and on an acceptable risk of failure.

By selection of impulse withstand levels of equipment, insulation co-ordination can be achieved in the whole installation reducing the risk of failure to an acceptable level providing a basis for overvoltage control.

A higher characteristic numeral of an impulse withstand category indicates a higher specific impulse withstand of the equipment and offers a wider choice of methods for overvoltage control.

The concept of impulse withstand categories is used for equipment energized directly from the mains.

b) Description of impulse withstand categories

Equipment of impulse withstand category I is equipment which is intended to be connected to the fixed electrical installations of buildings. Protective means are taken outside the equipment - either in the fixed installation or between the fixed installation and the equipment - to limit transient overvoltages to the specific level.

Equipment of impulse withstand category II is equipment to be connected to the fixed electrical installations of buildings.

Equipment of impulse withstand category III is equipment which is part of the fixed electrical installations and other equipment where a higher degree of availability is expected.

Equipment of impulse withstand category IV is for use at or in the proximity of the origin of the electrical installations of buildings upstream of the main distribution board.

2.17**primary circuit**

circuit which is directly connected to the AC mains supply

It includes, for example, the means for connection to the AC mains supply, the primary windings of transformers, motors and other loading devices.

2.18**secondary circuit**

circuit which has no direct connection to a primary circuit and derives its power from a transformer, converter or equivalent isolation device, or from a battery

Exception: autotransformers. Although having direct connection to a primary circuit, the tapped part of them is also deemed to be a secondary circuit in the above sense.

NOTE Mains transients in such a circuit are attenuated by the corresponding primary windings. In addition, inductive ballasts reduce the mains transient voltage height. Therefore, components located after a primary circuit or after an inductive ballast can be suited for an impulse withstand category of one step lower, i.e. for impulse withstand category II.