

**Ühepoolse sokeldusega luminofoorlambid.  
Ohutusnõuded**

Single-capped fluorescent lamps - Safety specifications

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61199:2011 sisaldab Euroopa standardi EN 61199:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 30.09.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 23.09.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 61199:2011 consists of the English text of the European standard EN 61199:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 30.09.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 23.09.2011.

The standard is available from Estonian standardisation organisation.

ICS 29.140.30

Inglisekeelsed võtmesõnad: electric strenght, heat resistance, heating, insulation resistance, lamp cap, lighting equipment, marking, quality assessment, safety, specification,

### Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:  
Aru 10 Tallinn 10317 Eesti; [www.evs.ee](http://www.evs.ee); Telefon: 605 5050; E-post: [info@evs.ee](mailto:info@evs.ee)

### Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:  
Aru str 10 Tallinn 10317 Estonia; [www.evs.ee](http://www.evs.ee); Phone: 605 5050; E-mail: [info@evs.ee](mailto:info@evs.ee)

English version

**Single-capped fluorescent lamps -  
Safety specifications  
(IEC 61199:2011)**

Lampes à fluorescence à culot unique -  
Spécifications de sécurité  
(CEI 61199:2011)

Einseitig gesockelte Leuchtstofflampen -  
Sicherheitsanforderungen  
(IEC 61199:2011)

This European Standard was approved by CENELEC on 2011-08-15. 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, Croatia, 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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 34A/1468/FDIS, future edition 3 of IEC 61199, prepared by SC 34A, "Lamps", of IEC TC 34, "Lamps and related equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61199:2011.

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) 2012-05-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2014-08-15

This document supersedes EN 61199:1999.

Main technical changes are the introduction of requirements for high frequency operation, a new temperature measurement position and few new cap-holder fits.

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.

## Endorsement notice

The text of the International Standard IEC 61199:2011 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 62471

NOTE Harmonized as EN 62471.

## 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	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps	EN 60061-1	-
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 60061-4	-	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 4: Guidelines and general information	EN 60061-4	-
IEC 60155	-	Glow-starters for fluorescent lamps	EN 60155	-
IEC 60360	-	Standard method of measurement of lamp cap temperature rise	EN 60360	-
IEC 60410	-	Sampling plans and procedures for inspection - by attributes	-	-
IEC 60529	-	Degrees of protection provided by enclosures - (IP Code)	-	-
IEC 60598-1 (mod)	2008	Luminaires - Part 1: General requirements and tests	EN 60598-1 + A11	2008 2009
IEC 60695-2-10	-	Fire hazard testing - Part 2-10: Glowing/hot-wire based test methods - Glow-wire apparatus and common test procedure	EN 60695-2-10	-
IEC 60901	-	Single-capped fluorescent lamps - Performance specifications	EN 60901	-
IEC 61347-2-3	-	Lamp controlgear - Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps	EN 61347-2-3	-
IEC 61347-2-8	-	Lamp controlgear - Part 2-8: Particular requirements for ballasts for fluorescent lamps	EN 61347-2-8	-

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	8
3 Terms and definitions .....	8
4 Safety requirements.....	10
4.1 General .....	10
4.2 Marking .....	10
4.3 Mechanical requirements for caps.....	10
4.3.1 Construction and assembly .....	10
4.3.2 Dimensional requirements for caps .....	10
4.3.3 Pin connections and keying configurations .....	11
4.4 Insulation resistance .....	11
4.5 Electric strength .....	11
4.6 Parts which can become accidentally live .....	11
4.7 Resistance to heat and fire .....	12
4.8 Creepage distance for caps .....	13
4.9 Lamp cap temperature rise .....	13
4.10 Radio interference suppression capacitors .....	14
4.10.1 General .....	14
4.10.2 Moisture resistance.....	14
4.10.3 Resistance to flame and ignition.....	15
4.11 UV radiation .....	15
4.12 Information for luminaire design.....	15
4.13 Information for ballast design.....	15
4.14 Information for lampholder design.....	15
5 Assessment.....	15
5.1 General .....	15
5.2 Whole production assessment by means of the manufacturer's records .....	16
5.3 Assessment of the manufacturer's records of particular tests .....	20
5.4 Rejection conditions of batches.....	20
5.5 Sampling procedures for whole production testing.....	21
5.6 Sampling procedures for batch testing .....	21
Annex A (normative) Tests for assessing caps for construction and assembly.....	23
Annex B (normative) Maximum lamp cap temperature rise values and method of measurement.....	24
Annex C (informative) Information for luminaire design .....	30
Annex D (normative) Conditions of compliance for design tests.....	32
Annex E (normative) Cathode connection configurations .....	33
Annex F (normative) Normal and abnormal lamp operation, lamp non-interchangeability requirements.....	35
Annex G (normative) Information for thermal tests.....	37
Annex H (informative) Information for ballast design .....	38
Annex I (informative) Information for lampholder design .....	39
Bibliography .....	41

Figure 1 – Places where to measure the temperature .....	14
Figure B.1 – Example for a test circuit for the measurement of the cap temperature rise at maximum discharge current and maximum SoS.....	25
Figure B.2 – Examples where to measure the temperature according to Clause B.2 .....	27
Figure E.1 – Where to connect the cathodes of different caps.....	34
Figure G.1 – Ball-pressure apparatus .....	37
Table 1 – Sheet references of IEC 60061 .....	7
Table 2 – Grouping of test records – Sampling and acceptable quality levels (AQL) .....	17
Table 3 – Acceptance numbers AQL = 0,65 % .....	18
Table 4 – Acceptance numbers AQL = 2,5 % .....	19
Table 5 – Batch sample size and rejection number .....	21
Table B.1 – Maximum cap temperature rise, lamps with internal or external starter (test at abnormal operating conditions).....	28
Table B.2 – Maximum cap temperature rise, lamps for starterless operation (test at normal operating conditions) .....	29
Table C.1 – Maximum cap temperature, lamps with internal or external starter (test at abnormal operating conditions).....	30
Table C.2 – Maximum cap temperature, lamps for starterless operation (test at normal operating conditions) .....	31
Table F.1 – Maximum allowable currents and rated lamp power.....	36
Table G.1 – Test temperatures.....	37
Table I.1 – Temperature point .....	39
Table I.2 – Maximum temperatures related to lampholder design .....	40

## INTRODUCTION

For the ease of measurement, a new location for measuring the maximum cap temperature and maximum cap temperature rise has been introduced with this third edition of this standard, resulting in new temperature values. However, the design of lampholders is based on the traditional measurement location. Therefore, a new Annex I has been introduced, providing the previous methods and values for those lamp types and kinds of lamp operation, which have been already covered in the previous edition of this standard. For lamps, which are operated by means of an electronic ballast however, also a new measurement method and temperature limits are given.

Special attention has been given to the requirements related to high frequency operation, not covered in the previous edition.



## SINGLE-CAPPED FLUORESCENT LAMPS – SAFETY SPECIFICATIONS

### 1 Scope

This International Standard specifies the safety requirements for single-capped fluorescent lamps for general lighting purposes of all groups having caps according to Table 1.

It also specifies the method a manufacturer should use to show compliance with the requirements of 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 in this standard.

NOTE Compliance with this standard concerns only safety criteria and does not take into account the performance of single-capped fluorescent lamps for general lighting purposes with respect to luminous flux, colour, starting and operational characteristics. For this information, readers are referred to IEC 60901.

**Table 1 – Sheet references of IEC 60061**

Cap type	Sheet numbers	
	IEC 60061-1 Lamp caps	IEC 60061-3 Cap gauges
2G7	7004-102	7006-102
2GX7	7004-103	7006-102
2G8	7004-141	7006-141, 141H, 141J, 141K
GR8	7004-68	7006-68A, 68B, 68E
G10q	7004-54	7006-79
GR10q	7004-77	7006-77A, 68B, 68E
GU10q	7004-123	7006-123, 123A
GX10q	7004-84	7006-79, 84, 84A and 84B
GY10q	7004-85	7006-79, 85 and 85A
GZ10q	7004-124	7006-79
2G10	7004-118	7006-118
2G11	7004-82	7006-82
2GX11-1	7004-82A	7006-82F, 82G, 82H
2GX13	7004-125	7006-125A, 125B
G23	7004-69	7006-69
GX23	7004-86	7006-86
G24, GX24	7004-78	7006-78
GZ24q	*	*
GX32	7004-87	7006-87
* to be developed.		

It may be expected that lamps which comply with this standard will operate safely at supply voltages between 90 % and 110 % of rated supply voltage of the used ballast and when operated with a ballast complying with IEC 61347-2-3 or IEC 61347-2-8 with a starting device complying with IEC 60155 (if applicable) and in a luminaire complying with IEC 60598-1.

## 2 Normative references

The following reference 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 reference 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 60061-4, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 4: Guidelines and general information*

IEC 60155, *Glow-starters for fluorescent lamps*

IEC 60360, *Standard method of measurement of lamp cap temperature rise*

IEC 60410, *Sampling plans and procedures for inspection by attributes*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60598-1:2008, *Luminaires – Part 1: General requirements and tests*

IEC 60695-2-10, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60901, *Single-capped fluorescent lamps – Performance specifications*

IEC 61347-2-3, *Lamp control gear – Part 2-3: Particular requirements for a.c. supplied electronic ballasts for fluorescent lamps*

IEC 61347-2-8, *Lamp control gear – Part 2-8: Particular requirements for ballasts for fluorescent lamps*

## 3 Terms and definitions

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

### 3.1

#### **single-capped fluorescent lamp**

low-pressure mercury discharge lamp having a single cap in which most of the light from the lamp is emitted by a layer of fluorescent material excited by the ultraviolet radiation from the discharge

### 3.2

#### **group**

lamps having the same electrical and cathode characteristics, the same physical dimensions and the same starting method